THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—43RD YEAR SYDNEY, SATURDAY, JANUARY 7, 1956 No. 1

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.

The Beattie-Smith Lectures—Recent Work in Hypnosis and its Relation to General Psychiatry, by Ainslie Meares 1

Factors in Childhood Affecting Mental Health, by Wilfred H. Cary, M.B., B.S., M.R.C.P., M.R.A.C.P., D.C.H. 5

Factors Affecting Mental Health in Childhood, by J. C. Kerridge 7

The Treatment of Tic Douloureux, by Douglas Miller 11

Some Observations on Thyrotoxicosis, by E. R. Trethewie 13

Severely Defective Hearing in School Children, by Patricia R. Davey 14

Diabetes Insipidus, by W. Lister Reid 15

REPORTS OF CASES—

A Case of Attempted Suicide with Iso-Nicotinic Acid Hydrazide, by G. Dixon and J. M. Woodforde 17

BOOKS RECEIVED 18

LEADING ARTICLES—

Occupational Disease 19

CURRENT COMMENT—

Cushing's Disease 20

Cortisone, ACTH and Infection 21

Histogenesis of Hepatic Cirrhosis 21

Annual Report of the British Empire Cancer Campaign 22

Chemotherapy and Survival in Acute Leuchæmia 22

Some Practical Suggestions on Tetanus Prophylaxis 23

Pulmonary Arterio-Venous Fistulæ and their Radiological Diagnosis 23

ABSTRACTS FROM MEDICAL LITERATURE— Page.

Bacteriology and Immunology 24

Hygiene 24

BRITISH MEDICAL ASSOCIATION NEWS—

Scientific 26

OUT OF THE PAST 32

CORRESPONDENCE—

The British Medical Association and its Members 33

OBITUARY—

Reginald George Quinn 33

POST-GRADUATE WORK—

The Melbourne Medical Post-Graduate Committee 35

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA 35

AUSTRALIAN MEDICAL BOARD PROCEEDINGS—

Queensland 36

HONOURS 36

CONGRESSES—

International Congress of Human Genetics 36

DIARY FOR THE MONTH 36

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 36

EDITORIAL NOTICES 36

The Beattie-Smith Lectures.[1]

(University of Melbourne.)

RECENT WORK IN HYPNOSIS AND ITS RELATION TO GENERAL PSYCHIATRY.

By AINSLIE MEARES,
Melbourne.

LECTURE I.

I AM appreciative of the honour of being invited to give the twenty-first of the annual Beattie-Smith lectures on psychiatry. These lectures were founded by the late Dr. Beattie-Smith. He believed that there was a need for the public to be better informed in matters of psychiatry. During the thirty years since his death, there have been some great changes. At that time the public was in almost complete ignorance of psychiatry, whereas now we have psychiatry all around us. It is in the daily Press. The psychiatric article sells the popular magazine. We have psychiatric painters and sculptors. We have psychiatric school teachers and kindergarteners. These days, schizophrenia accounts for both the morbid brooding of the modern introspective novel and the mysterious killings in the "whodunnit". It seems that schizophrenia is likely to become the defence *par excellence* in the criminal courts.

In view of all this, it has occurred to me that perhaps there is no longer any need for a public lecture on psychiatry; that the patient with the latest issue of a certain "digest" is already a jump ahead of his physician. Here lies the danger. The public is fed on the tantalizing *and dramatic half-truths of psychiatry. There is little* attempt at evaluation of the ideas put forward. For this reason, I believe that the far-sighted Dr. Beattie-Smith, by his foundation, has done something towards satisfying a real community need.

I find such a task difficult in the extreme. There are here tonight men who have been my teachers, and whose wisdom I still greatly respect. There are colleagues with whom no opportunity is ever lost for discussion and argument about technical aspects of our art. There are others *here who probably have no real knowledge of psychiatry* at all, but who are drawn here by a general interest in the subject.

I propose to meet the problem by telling you something about one particular branch of psychiatry in which I am especially interested. By discussion of this particular subject I hope to demonstrate some of the principles of general psychiatry.

In discussing hypnosis, first let us be sure that we have the subject in right perspective. Hypnosis constitutes only

[1] Delivered at Melbourne on September 26 and October 3, 1955.

a small part of modern psychiatry. Even with further development, it is never likely to become a general panacea for human neuroticism.

As with almost any subject, to understand the present situation we must know something of the past. The history of hypnosis spans the history of man. At Lascoux in southern France there has recently been discovered a cave which was inhabited by man in the palæolithic period. The walls are adorned with paintings of reindeer and bison. Among the animals there is one very odd painting of a human figure. Some authorities believe that it represents a medicine-man in a trance state. If this be so, it must surely be the first reference to hypnosis, as the painting was done some 20,000 years ago. Of another era, mystery still surrounds the sacred sleep of the ancient Egyptian temples; but it is believed that the priests developed the practice of inducing hypnotic sleep in the supplicants as a balm for their distress. In a widely different culture the practice of auto-hypnosis was organized into a philosophical system. In the third century B.C. it found expression in Sanskrit in the Yoga Sutras of Patanjali. In its purest form this system aims at spiritual liberation through sensory withdrawal and meditation. It has religious, philosophical and medical components. Yoga has been practised over the centuries. In some forms it has become debased, so that the powers attainable through the hypnotic state have tended to overshadow the spiritual aspects of the system. In primitive cultures, as distinct from these ancient but highly civilized cultures, hypnosis is seen in the trance state of ritual and initiation ceremonies.

I mention these matters to show that the subject of tonight's lecture is of great antiquity. Hypnosis has been practised in one form or another over the recorded history of man. It is with due humility that I venture to discuss recent work on a topic which has already been the subject of age-long study.

The more modern history of hypnosis starts with Anton Mesmer in the later part of the eighteenth century. He practised in Vienna. He had an interest in abstruse subjects, and wrote a paper on the influence of the stars on human destiny. He then proceeded to study the influence of individuals one on another, and particularly the influence of himself on other people, and its use for curative purposes. He developed a special technique for influencing his subjects, in which he made passes with his hands in front of the subject. He moved to Paris, where he produced many and dramatic cures. He soon established a fashionable and lucrative practice in the flamboyant and rather decadent society just prior to the French Revolution. To explain his therapeutic success, he postulated a theory of animal magnetism. The magnetism flowed from his fingertips to the patient, with curative effect. To deal with the rush of patients, like some modern psychiatrists, he resorted to mass-production methods. With his own personal magnetism he magnetized some iron which he placed in a large tub of water. Patients were able to take hold of iron handles which led to the iron in the tub. By this means they could feel the magnetism which Mesmer had told them was in the tub. They did feel it. It was so strong that it usually threw the patients into a convulsion, and on recovery from the convulsion the patient was often cured, or at least felt improved.

I must make myself quite clear. There was no magnetism, either animal or electric. We believe that the patients were thrown into a convulsion and cured by the process of suggestion.

I do not think that Mesmer was consciously a fraud. He believed in his powers. He had the evidence of the cured patients, and his theory of animal magnetism seemed to explain the observed facts.

He became a popular figure, but his success aroused the envy of the medical profession. Besides this, it became known that some people went to him and were not cured, and others who had appeared cured relapsed. He became the centre of controversy, and a committee was set up to investigate the situation. The committee, in a long report, found against Mesmer. They could find no evidence of animal magnetism. They thought the whole thing was hocus-pocus. Although Mesmer was discredited, mesmerism was practised by others and spread to England and America. Another committee confirmed the findings of the first committee. Mesmer himself had left Paris and died more or less in obscurity in Switzerland.

All this happened a long time ago; there is no virtue in recording the facts of medical history unless we can learn something from it. What does one learn from the history of Anton Mesmer?

One lesson is that it is very easy for the physician to delude himself as to the *modus operandi* of his treatment. We must remember this in our evaluation of the recent work on hypnosis.

Another lesson is that intelligent and reputable persons can easily pass wrong judgement by condemning a whole procedure because they find one fault in it. The investigating committee found that the idea of animal magnetism was wrong, so it ruled out mesmerism altogether, without giving much consideration to the fact that a great number of people were being helped.

Another lesson is this, and I think it is an important one: psychiatry is so intimately related to philosophy, religion and sociology, that any work must be assessed in regard to the cultural *milieu* in which it is done. French society just prior to the Revolution was superficial in the extreme and unrelated to the realities of life. The art and letters of the time record the pursuit of the sensual. Such is a very favourable background for hysteria, and I think one can assume that not only would Mesmer's patients include a large proportion of hysterics, but the nature of their hysteria would be relatively simple. Such persons are easily influenced by suggestion. An example from our own day is the high value which our present culture places on medication by injection. Hence, any therapy which involves the use of injection carries with it a strong suggestive effect over and above the pharmacological effect of the material injected. Such reasons as these may be very relevant to our assessment of the new work on hypnosis.

Mesmerism spread to England, and also to America, where it was destined to have a profound social effect in a rather devious way. In the year 1862 a Mrs. Patterson, an obscure young woman of religious inclination, was treated by a mesmerist, Phineas Quimby. She became friendly with him and learned the principles of suggestion from him. She went on to integrate these principles with religious belief. After a subsequent marriage, she is known to us as Mary Baker Eddy, the founder of Christian Science. So we must not forget that Christian Science, which is an important factor in the lives of a great number of people in many countries of the world, owes much to mesmerism.

But I do not think that the eclipse of mesmerism was really due to the adverse reports of the investigating committee. I think it was rather due to the extravagant claims of the later mesmerists themselves.

In the middle of the last century mesmerists were still practising. About this time—1842 to be exact—a young Scots physician, James Braid, attended a mesmerist's performance at Manchester. He went with the express intention of debunking the whole procedure, but he came away terribly impressed by the trance state induced by the mesmerist. He experimentad himself. He found that he could put subjects into a trance by making them fix their gaze on a bright object without any mesmeric passes at all, and so he finally disproved the theory of animal magnetism. He believed that sleep was somehow an essential element of the trance, so he coined the word "hypnosis" from the Greek ὕπνος, sleep. He believed that an important factor in the induction of the hypnotic state was sensory fatigue. Hence the importance of tiring the visual elements of the brain by encouraging the patient to maintain a fixed stare. As a matter of fact, sleep is not an essential part of hypnosis; neither is sensory fatigue essential to the induction of the hypnotic state. But Braid did a great service

in freeing the subject from the aura of mystery and occultism which had grown around mesmerism. Braid's method, or modifications of it, remain today the most widely used method for the induction of hypnosis.

The literature of the time discloses an extraordinary state of affairs, some practitioners claiming to be scientific hypnotists and others claiming to use the real animal magnetism of mesmerism. Eventually, the magnetizers, as they were called, lost the battle.

Two events took place about this time, which I think we should mention.

A certain Dr. Elliotson was appointed the first professor of medicine at the London University College. He was interested in mesmerism and conducted experiments and public demonstrations. Conservative opinion was so strongly against him that in 1838 he had to resign from the chair of medicine. He continued his work privately and treated many influential people. Thackeray subsequently dedicated his novel, "Pendennis", to him. *The Lancet* had refused publication of his papers, so Elliotson started a journal devoted to animal magnetism. He gave it the name "Zoist", coining the word from the Greek. This journal became a valuable means of expression for those working in this field.

About this time, a doctor in India, Esdaille by name, carried out a number of major surgical operations under hypnosis without pain to the patient. The results were well established; there is no doubt as to authenticity. In reading of these matters, I have been at a loss to understand why such a great achievement did not receive the wide acclaim which it would seem to merit. This was the time after the discovery of anæsthetics, when there was great general interest in the subject. It would seem that Esdaille's work on hypnotic anæsthesia was totally eclipsed by the interest in pharmacological anæsthesia.

We return again to France, about 100 years after the days of Mesmer's famous salon. At Nancy there was a physician named Liebault. He had read of Braid's work and was quietly practising hypnosis among the poor. He came to the great conclusion that suggestion, and suggestion alone, was the important factor in hypnotic treatment. He wrote a book explaining his theory, but the story is that he sold only three copies. His fame really lives through his pupil, Bernheim, who continued Liebault's work and became widely known. He wrote a book on "suggestive therapeutics", which was soon translated into English.

The views of Liebault and Bernheim that suggestion was the mechanism of hypnosis were strongly opposed by their fellow countryman, Charcot, the great neurologist, who worked at the Salpêtrière hospital in Paris. Charcot believed that hypnosis was an hysterical condition produced only in unstable subjects. It seems that the great esteem with which Charcot was regarded did a good deal to delay the general acceptance of Bernheim's hypothesis.

Eventually Bernheim's views prevailed. His suggestion therapy was an authoritative form of treatment. In it the physician does what he can to present himself as a great man. The tendency is to overwhelm the patient, to dominate him. The therapist masters the patient in the hypnotic situation, and when the mastery is complete the patient is commanded to give up his neurotic symptoms. Bernheim, in his book, makes the comment that soldiers are the patients who are most easily hypnotized because they are accustomed to obeying commands. He also says that, if he is having any difficulty in hypnotizing the patient, he commands the word "sleep" in a loud voice.

Unfortunately, patients in whom the symptoms are maintained by active conflicts tend to relapse when treated by this technique. This, together with our greater understanding of psychopathology, has led people to regard Bernheim's method with some contempt. But it is well to remember that there is a group of patients whose symptoms are maintained by habit, or vicious circle mechanisms, and that these patients frequently obtain complete and permanent relief by Bernheim's method. Accordingly, it is most important to be sure of the psychodynamics of the case before starting treatment.

You will recollect that, at about this period, Freud was interested in hypnosis. He made a special trip to Nancy to study Berheim's methods, and he subsequently translated Bernheim's book into German. At this time, about the turn of the century, Freud was working with an older man, Joseph Breuer. Breuer used a rather different therapeutic approach. He encouraged the hypnotized patient to talk and express his emotion when in the hypnotic state. This outpouring of the emotion which was associated with the repressed conflicts is known as catharsis, and the method became known as Breuer's cathartic method. It was a great change from the method in which the neurotic symptoms were simply banished by command. It seemed that if a patient ventilated his emotion, "blew off steam", as it were, the neurotic symptoms would disappear without any direct suggestion or command. Freud used this method. He seems to have placed more and more emphasis on the recalling of the repressed conflicts.

Freud then hit on the technique of getting patients to recall their repressed conflicts in the waking state by the process of free association. He gave up hypnosis, and went on to the studies which culminated in the psychological theories upon which psychoanalysis is based.

The point which is relevant to the present discussion is that Freud abandoned hypnosis. Freud himself gives as his reason that he was unable to hypnotize all his patients satisfactorily, and also that some of the patients treated by the cathartic method relapsed. Recently, a worker in America has published a paper in which he tries to assess the validity of these reasons for Freud's abandonment of hypnosis. He concludes that they are rationalizations.

Be that as it may, the leading medical schools of the western world became more and more orientated towards psychoanalysis. The founder of psychoanalysis had tried hypnosis and found it wanting. Whatever the real reason for this, Freud's influence was such that any serious investigation of hypnosis practically ceased for half a century.

Treatment by psychoanalysis is a long and tedious business. The patient has to attend almost daily for many months, often extending into years. Since the last war there have been increased efforts to find shorter methods of treatment which would still be consistent with the principles of psychoanalysis. With this object in view, some psychoanalytically trained psychiatrists have turned to hypnosis, because of the possibility of a more direct approach to unconscious material. It is interesting to note that this revival of hypnosis has been initiated by the psychoanalytic group of psychiatrists—those very people who for fifty years had decried any use of hypnosis on the grounds that Freud himself had tried it and given it up.

This, then, marks the beginning of what I would call the recent work on hypnosis. It really consists of an attempt to use hypnosis to make a more direct approach to unconscious material, and to use this material in a way consistent with the general principles of Freudian psychopathology. This procedure is known as hypnoanalysis. This involves revolutionary changes in our ideas of hypnotic treatment. It involves, firstly, the question of insight, and secondly, the passivity of the therapist. These ideas require a little explanation.

The formulation of Freudian psychopathology has provided a workable theory for the explanation of mental illness. Repressed conflicts are the ultimate cause of such illness. It is believed that if the patient can be given insight into the nature of these conflicts relapse will not occur. This is done in psychoanalysis, but the extension of the idea of hypnosis is quite new. Hypnoanalysis is a form of hypnotic treatment in which it is believed that the effective element is the achievement of insight.

The second new idea which hypnoanalysis brings with it is the passivity of the therapist. Until this time the therapist had always assumed an active role. He was authoritative towards the patient, who remained completely

passive and yielding in his hands. In fact, it was believed that without prestige and authority there could be no hypnosis. Mesmer's patients felt that they were overpowered by the force of animal magnetism. Braid tired out his patients by making them look at a bright light; Bernheim mastered his patients by sheer prestige and command. But any idea of forcing insight on to a patient by the use of authority is quite inconsistent with the principles of psychoanalysis. So these recent workers (it is really only in the last decade) have sought to induce hypnosis and at the same time remain passive.

This has meant a new approach to the matter of inducing hypnosis. The main principles of hypnosis are explained to the patient. It is made particularly clear that there is no question of his will being subjugated to the will of the therapist. He is told that almost any normal person, who really desires it, can in fact be hypnotized; and that on his part it is an entirely voluntary step. The attitude of the therapist is: "You do it yourself; I only help you." The patient actually allows himself to drift into hypnosis. He is told: "You let yourself go completely, and your body will work automatically." Suggestions of hypnotic sleep or suggestions of automatic movement may be given. With this approach, the passivity of the therapist can be maintained and effective hypnosis induced.

As with any new technique, in hypnoanalysis different workers are using vastly different methods. Some proceed with ordinary psychoanalysis and use the hypnotic state only when difficulties are encountered in the analysis. When the difficulty has been resolved with some sessions of hypnosis, a return is made to free association. Other workers attempt a kind of modified psychoanalysis with the patient in hypnosis. Others again use a question and answer technique with the patient in only light hypnosis. The aim is the same in all cases: to achieve insight, and for the therapist to remain passive so that there is no question of the domination of the patient.

In Melbourne there have been made some small, but I think significant, contributions to this procedure, in relation to both the technique of inducing hypnosis and the method of achieving insight.

Some patients are more difficult to hypnotize than others. The later mesmerists explained this by saying that the will of these patients was too strong for that of the therapist. From Bernheim's time to the present day it has been explained by stating that people vary in their suggestibility, and those who are difficult to hypnotize are lacking in suggestibility.

It is thought that, to be consistent with the principles of modern psychiatry, this problem should be viewed from a more dynamic orientation.

We are familiar with the unconscious defences which come into play when we are threatened with the unpleasant awareness of our unconscious conflicts. We must remember that it is not only the repressed conflicts that are unconscious, but also the defence mechanisms. It is thought that similar ideas can be applied to the induction of hypnosis. The abandonment of the self in passive hypnosis requires the surrender of voluntary control. Remember that the patient is willing and trying to do this. Now, if this surrender of voluntary control is regarded by the ego as a threat, it is thought that unconscious defence mechanisms are called into play to save the ego from this threat of loss of control. Remember that the process is unconscious. The patient is quite unaware of the mechanism, and it is not influenced by the patient's conscious desire to be hypnotized. If such mechanisms do in fact operate, it is obvious that there must be a radical change in our approach to the patient who is difficult to hypnotize.

In the past the usual method has been to try to increase the patient's suggestibility by inducing sensory fatigue or by continuing the monotonous repetitions of the same suggestion. But if the patient is in fact being prevented from going into hypnosis by unconscious defence mechanisms, then these methods are too static. What is required is an understanding of these defences so that we may hope to circumvent them.

The nature of the defences is sometimes very simple, sometimes more complex. For instance, some patients develop an extreme restlessness when about to be hypnotized. They cannot keep still, they fidget, they wriggle about, they cannot be comfortable. This tends to make hypnosis much more difficult. I used to think that this restlessness was merely the outward manifestation of an inner anxiety evoked by a new experience. I am now quite sure that this is not the whole truth. The restlessness is much too purposive. It acts as a defence for the ego against the abandonment of the self, and the consequent loss of control in hypnosis. Remember that the patient consciously desires to be hypnotized and is not aware of the purposive nature of his restlessness. He is consciously doing all he can to make hypnosis easy.

Some patients defend themselves by going to sleep to escape hypnosis; others unconsciously defend themselves by doing the exact opposite to what is suggested to them. If it is suggested that their eyelids feel heavy, the eyes are opened wide; if it is suggested that the hand feels light, it will be observed that the hand is ever so slightly pushed downwards. This defence, in which the patient unconsciously does the opposite of what is suggested, is called "defence by negativism". Others defend themselves by a kind of simulation of hypnosis. They have the mistaken belief that if they voluntarily do everything that the therapist suggests, they will not be hypnotized, because they are actually doing it of their own accord. There are other such defences.

The next problem concerns the method of procedure when the operation of these unconscious defences has been recognized. Elementary tactical principles apply here. If the defences are weak they can be taken in our stride; for example, if the restlessness is not too great or too persistent, it can be ignored. The hypnotic suggestions can be continued with the addition of a little reassurance and a few suggestions of calm and ease. The weak defences peter out and the induction of hypnosis continues.

If, on the other hand, the defences are stronger, we must change our tactics, or else the defences will prevent hypnosis. The obvious manœuvre is to circumvent the defence. In practice this can be done by switching the suggestions to another field in which the patient's defences do not apply. For example, if the patient has been given suggestions of drowsiness and hypnotic sleep, and has defended himself by restlessness, a switch can be made to suggestions of movement. Restlessness cannot defend the patient from suggestions in the new field. Thus the patient's defence is circumvented. It is often possible to do more than this—actually to use the patient's defences against the patient in the hypnotic process. For example, if a patient is defending himself by negativistic behaviour, he is in fact responding to the therapist's suggestions, even if it is in a negative fashion. So, such a patient may be encouraged in his defence. If it is suggested that the patient's arm moves forward, he pulls it back a little; if it is suggested that his arm move back, he pushes it forward. As the suggestions are continued, the patient's arm moves back and forth, forward on the suggestion of backward movement and backward on the suggestion of forward movement. When the movement is well established, it is suggested that the arm moves to and fro, which, of course, it does, and the patient is hypnotized—hypnotized by using his own defences against him.

From these few examples it would seem obvious that the classical ideas on the induction of hypnosis need radical revision. It can no longer be regarded as a static situation in which the therapist repeats over and over again the same suggestions. It must be a highly dynamic procedure with the therapist ever ready to observe the minutiæ of the patient's behaviour. He must assess both the conscious and unconscious significance to the patient of all the small details of what the patient does and what he says—the way he does it and the way he says it. He must then use this knowledge in the appropriate way in the suggestions he is giving the patient. It is not like a game of chess in which the players are given time to think out the next move. The appropriate response of the therapist must be

made immediately. Any delay in making the response may produce an incongruity which disturbs the relationship between therapist and patient.

The acceptance of the idea that the induction of hypnosis is a dynamic situation brings with it a further implication. It is the custom among writers on the subject to describe methods or techniques for the induction of hypnosis. Such articles typically conclude by a statement that hypnosis can be induced in such and such percentage of subjects by using such and such a method. But if the induction of hypnosis is a really dynamic procedure, there should be no fixed method. The situation must be kept fluid. The therapist should be prepared to change from one technique to another at a moment's notice, according to the defences which are operating at that particular moment.

From present investigations it would seem that by using this dynamic technique, hypnosis can be induced in almost anybody who really desires to be hypnotized. If this opinion is borne out by other workers, it should very widely extend the field in which hypnotherapy can be used.

We shall leave the subject here for tonight. Next week I propose to discuss the nature of the hypnotic state and to give an account of some other recent work done here in Melbourne. This relates to a new technique in which the patient is helped to insight by painting while under hypnosis. We shall also see how this procedure may become a means of research into the greater understanding of the symbolic processes of the mind. Finally, we must again remind ourselves that hypnosis is only a small facet in the great mosaic of psychiatry; but, when viewed from the right angle, it may cast light into those dark places where fact and fantasy merge and beyond which nothing is clear.

FACTORS IN CHILDHOOD AFFECTING MENTAL HEALTH.[1]

By WILFRED H. CARY, M.B., B.S., M.R.C.P., M.R.A.C.P., D.C.H.,
Sydney.

THE number of factors in childhood which can affect mental health is obviously very great, and it is difficult to choose a particular aspect of this large and admittedly important subject for discussion. However, it is intended in this paper to confine discussion to some of the factors involved in the management of infants during the first few years of life.

One reads so many conflicting theories as to the effect on personality of the various methods of child management that it must frankly be admitted that one has been puzzled as to the relative importance and accuracy of these varying views, which are so ardently and emotionaliy put forward by their respective protagonists.

In this paper several controversial issues important to the pædiatrician will be raised. An attempt will be made to present the evidence both for and against, and it is hoped from the resulting discussion that many of our ideas on these subjects will be clarified.

Before we can discuss some of the factors in childhood affecting mental health we should try to be clear in our own minds just what is a "normal" child.

In the notes for the students attending the Institute of Child Health it has been pointed out that it is almost impossible to define such a child—our concept of him must be affected by our own childhood experiences and modified by our experience with our own children.

What sort of a child do we want? We must make up our minds whether we want the independent thinker, who may cause friction with the community later, or whether we want one who is adapted to the community and who may be subject to obsessional neurosis. Probably we want both of these, and many in between as well.

Prenatal Development.

Recently the work of Sontag has thrown some emphasis on the characteristics of prenatal development. Sontag (1935) thinks that the emotional development of the infant may be affected by intrauterine experiences. He feels that infants who during the fœtal period show an excessive amount of movement tend to be hyperactive, irritable, squirming, crying children, who cry for feeding every two or three hours, in considerable contrast with the more normal four hours. Sontag maintains that such an infant is to all intents and purposes a neurotic infant.

It must be very difficult to control such a study adequately, and it is probably preferable to keep an open mind on such a concept for the present. However, many of you will remember that Dr. Elizabeth Turner, of Melbourne, has observed that infants for adoption exhibit a syndrome characterized by excessive restlessness, poor weight gain and gastro-intestinal upsets for no apparent reason. This she attributes to the gross emotional disturbance in the unmarried mother during her pregnancy.

We are all more at home with the development of the child during infancy, and it is to this period that the greater part of this paper will be devoted.

The importance of childhood experience to the formation of personality was one of the great findings of psychoanalysis. No pædiatrician will dispute that general finding, but all will wish to elucidate it.

The orthodox school of psychoanalysis, in keeping with Freud's genetic and biological orientation, has stressed the special significance of infantile sucking, excretory and genital functions for the shaping of adult personality. Reasoning from these Freudian theories, pædiatricians and psychiatrists have advocated systems of infant care which they believe will promote the growth of secure personalities free from neurosis. In general these systems advise (i) prolonged breast feeding, (ii) self-demand feeding, (iii) gradual and late weaning, (iv) late and lenient induction of bowel and bladder training.

We must remember that Freudian theory arose from the reconstruction of infant experiences obtained from the analytic couch. They do not constitute empirical findings on the infantile situation.

Melanie Klein and Anna Freud have added much to our direct knowledge of child psychology, but they generally have been more interested in applying psychoanalytic theory than in testing it.

It appears that, although we have been exposed to many hypotheses concerning the effect of early weaning, rigid feeding schedules and firm bowel training, we have no objective records of development of children going through these experiences, nor have we many controlled experiments dealing with the problem.

I shall now deal with some of these systems of infant management in turn.

Breast versus Bottle Feeding.

It has been argued that many features of the infant's early feeding experiences contribute to the formation of personality.

Recently the chairman of the Committee on Maternal and Child Feeding of Medical Research Council (United States of America) (Aldrich, 1947) concluded his account of an investigation of this problem with the following words:

> Although there is a voluminous literature on the subject of the emotional value of breast feeding to both mother and baby, it is regrettable that concrete evidence on this point is difficult to obtain. This is particularly regrettable in view of the rather emotional treatment the subject is receiving in both professional and lay circles.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 29, 1955.

Some studies have been performed. Rogerson and Rogerson (1939) traced 109 children who had been observed as infants in their London clinic seven years before. Those artificially fed had experienced more feeding difficulties, poorer health and greater restlessness during infancy than those breast fed.

Hoefer and Hardy (1929) subjected 383 children, aged from seven to thirteen years, to physical and mental tests and correlated these results with the duration of breast feeding; in general they found that children who are artificially fed were, on the whole, inferior mentally and physically to the breast fed. The artificially fed children were more poorly nourished, more susceptible to diseases and slower in learning to walk and talk than were the breast-fed children.

Both these surveys were based on general populations, and no effort has been made to control the groups for factors other than the method of feeding during infancy; the inference that the artificial feeding was a causative element in the creation of the difficulties is not warranted by the data.

That ill health and feeding difficulties in infancy can often be taken as evidence of emotional maladjustment is, of course, widely recognized.

A study by Faber and Sutton (1930) supports the inference that these difficulties are not necessarily due to the manner of infant feeding. These workers compared 42 babies who had been breast fed for less than six weeks with a similar number who had been breast fed for more than forty weeks; the calorific content of the diet *et cetera* was carefully controlled. All the babies received excellent care. It was found that the breast-fed babies gained more weight during the first quarter of the year, but that this relationship was reversed for the remainder of the year.

The bottle-fed group were healthier and had fewer diseases than the breast-fed group.

If we accept the psychosomatic criterion that physical health and psychological health are apt to be correlated, this study would seem to show that artificial feeding need in no way be inferior to breast feeding in promoting the emotional well-being of infants.

Above all, the character of the mother must be evaluated before an intelligent opinion can be ventured as to whether breast or artificial feeding will better serve to promote the healthy development of the child's personality.

It would appear that it is not easy to find conclusive evidence to favour the current belief among some pædiatricians that breast feeding is inevitably more advantageous to the child from the emotional point of view than artificial feeding.

Duration of Breast Feeding.

Hoefer and Hardy in their study found that the highest ratings in muscle tone, physical and mental development, early walking and dentition, were registered by children who as infants had been breast fed for four to nine months. Those breast fed for a shorter or longer period had a lower rating.

Pearson (1931) obtained similar results in a retrospective survey of 72 children; he showed that those who had been breast fed for six months or more were less nervous, less timid and less maladjusted at school than those breast fed for shorter periods.

On the other hand, Maslow and Szilagyi-Kessler (1946) gave a security-insecurity inventory to students in classes at Brooklyn College, and correlated the measure of security with the duration of infantile breast feeding. The results showed that the highest security scores were obtained by the groups who were not breast fed, and by those who were fed at the breast for over one year.

Petersen and Spano (1941), working with nursery children, found no evidence that those children breast fed for the shortest time were less well adjusted and secure than those breast fed longer; again, in a group of normal children studied there was no relation between the duration of breast feeding and child personality at the nursery school level, or with adjustment at the pre-adolescent stage.

Since breast feeding is so frequently considered *de rigueur* from the emotional point of view, the views of Gesell and Ilg (1943) seem worth stating:

> It is probable that the nervous system of the modern infant is adaptive enough to meet most of the demands made by new modes of nutrition. Indeed, oncoming generations of infants by virtue of these changes may even acquire emotional patterns of self dependence which will ultimately add to the mental stamina of the race and form personalities better suited to the stresses of civilisation.

All that can be said from the foregoing studies is that there is no linear correlation to be observed between the duration of breast feeding and the major aspects of personality studied.

Self-Demand versus Scheduled Feeding.

We are all aware that in recent years there has been a shift of opinion in many circles in favour of self-demand feeding, in which nursing always rewards the child's crying. It is thought that this régime is better calculated to produce a confident, unneurotic personality than is the rigid, regularly scheduled feeding in which the clock rather than the infant sets the nursing time.

We read statements such as that of Mowrer and Kluckhorn (1944): "The parent who responds to a clock rather than to the behaviour of the child is, from the child's point of view, not responsive at all." If the rewards a baby receives bear no constant relation to this behaviour, it is held that an apathetic, or an anxious, or even a hostile individual is likely to result. One's own experience is inclined to agree with these views, and in practice it has been found that a modified policy of self-demand feeding is both practicable and satisfying to both mother and child.

However, we must realize that such statements as those mentioned are to be regarded as hypotheses, not facts. There appear to be only two studies dealing with this subject. It is well known that only a few years ago the best "scientific opinion" favoured scheduled feeding to promote healthy personality development, and this view is still fairly widespread in the medical profession. We know that even very young infants learn to adjust their sleeping and eating habits to a schedule of regular feeding, and it would seem that this regularity might serve to promote a feeling of security and confidence on the part of the child just as much as any other feeling.

The two studies mentioned above were the following: (i) Miss Trainham (1945) reported on a study at the Merrell Palmer School; two groups of children were chosen, one group on self-regulated feeding and the other group on scheduled feeding. The parents of both groups were similar. The results suggest in a very striking way that those children on self-demand feeding were in all categories of the tests more advanced in their development. (ii) Dr. Escalona (1945) has conducted similar studies and has arrived at opposite results. Both these workers used very small groups, and neither study would stand up to statistical analysis.

It must be emphasized that these two studies appear to be the only ones in the literature. When looked at coldly they surely cannot be of much value; yet self-demand versus scheduled feeding is always good for an emotional argument.

Nothing is so easy to manufacture as a theory to explain a particular empirical finding.

Our means of measuring personality are not very adequate; our knowledge of its genesis is even less adequate.

Weaning.

It is difficult to find experimental data correlating different forms and times of weaning with aspects of personality.

In our society weaning takes place over a fairly short period of time and may be classified as trauma. Freud

(1933) conceives it as an invariably painful experience for the child. He takes the view that the infant has an insatiable yearning for the breast. Perhaps this is an adult "reading in" of emotion into the young infant, because it is difficult to see why the purely physiological sucking capacity of the neonate cannot be satisfied as well on the artificial nipple.

Of course it is argued that the trauma a child suffers when removed from the breast is not just a matter of withdrawal of nourishment, but also warmth and affection with the mother's breast. When weaning disrupts a series of satisfactions, which the child has been receiving regularly, it would be surprising if he did not react emotionally to this deprivation. We might think that late weaning would be more traumatic than early weaning, since in the former case the child would be more firmly attached to the satisfaction of breast feeding. However, the psychoanalysts tell us that the developing child's ego is better able to withstand this trauma at a later age, and this results in self-assurance and optimism. On the other hand, it may be argued that weaning, whether at the early or late stage, cannot be said either to weaken or strengthen the child's sense of security until the entire situation in which the act takes place has been appraised.

Sphincter Training.

The anal-erotic or compulsive character is the most clearly drawn picture in Freud's album.

Freud's idea is that the infant derives a great deal of exogenous pleasure from its bowel movements, and when we inhibit this pleasure by severe bowel training the usual result is reaction formation; there is limitation of all his primitive impulses and pleasure-seeking activities, leading in severe cases to parsimony, stinginess and meticulousness.

Some psychiatrists have formulated a system which directly correlates adult character traits with specific forms of sphincter training in childhood.

It appears that the child who has been trained in continence of urine and fæces slowly and without pressure will yield control over his eliminations without anxiety or resentment; but a precocious or harshly coercive training that forces the child before he is psychologically ready to release to outside demands will set up resistance and accentuate retention as a defensive response. However, when we come to examine evidence for this influence of sphincter training upon personality development, we find that the data are too meagre either to substantiate or to disprove Freud's theory.

Huschka (1942) studied the reaction of 213 problem children to the imposition of bowel training. She considered the training as coercive if it commenced before the age of eight months and was concluded before the age of eighteen months. Huschka found that children so trained often manifested undesirable responses such as constipation, fear and rage. However, this survey was poorly controlled, and there was no follow-up investigation to ascertain permanent effects upon personality.

The few other studies of this subject reported in the literature are equally pooriy conceived and controlled. Orlansky (1949) points out that only some twenty years ago a standard text-book of psychology advocated bowel training from six weeks. The shift of opinion that has taken place in the past decade must be regarded as due to a "middle class fashion" of the times, rather than to a conclusive scientific validation of the preferability of later sphincter training.

Conclusion.

Everyone must surely agree that the evidence both for and against the influence of these various aspects of infant management is very poor indeed. The number of studies carried out and the number of children studied are both very small. In most of these studies there has been no attempt to control many factors which must obviously play an important role.

Margaret Mead (Benedict, 1949), when commenting on Benedict's article concerning the effect of swaddling in European countries, makes the following statement: "We found that it was not possible to make any simple cross cultural statement, such as toilet training, or long nursing, or sudden weaning, would have a single predictable effect in later character." It has become increasingly clear that it is necessary to include a variable loosely described as "tone of voice" or the quality of personal relationship within which a given mode of behaviour is indulged or frustrated.

One feels strongly that many theories of infant management and their effect on the child's mental health, which are frequently and emotionally propounded, are yet to be proved, and that a rich and productive field of research lies open to all of us in this subject.

References.

ALDRICH, C. A. (1947), "The Advisability of Breast Feeding", *J.A.M.A.*, 135 : 915.

ESCALONA, S. K. (1945), "Feeding Disturbances in Young Children", *Am. J. Orthopsychiat.*, 15 : 76.

FABER, H. K., and SUTTON, T. L. (1930), "A Statistical Comparison of Breast-Fed and Bottle-Fed Babies During the First Year", *Am. J. Dis. Child.*, 40 : 1163.

FREUD, S. (1933), "New Introductory Lectures on Psychoanalysis", Norton, New York.

GESELL, A., and ILG, F. L. (1943), "Infant and Child in the Culture of Today", Harper, New York.

HOEFER, C., and HARDY, M. C. (1929), "Later Development of Breast Fed and Artificially Fed Infants", *J.A.M.A.*, 92 : 615.

HUSCHKA, M. (1942), "The Child's Response to Coercive Bowel Training", *Psychosom. Med.*, 4 : 301.

MASLOW, A. H., and SZILAGYI-KESSLER, I. (1946), "Security and Breast Feeding", *J. Abnorm. & Social Psychol.*, 41 : 83.

MEAD, M. (1949), in BENEDICT, R., "Child Weaning in Certain European Countries", *Am. J. Orthopsychiat.*, 19 : 342.

MOWRER, O. H., and KLUCKHORN, C. (1944), "Dynamic Theory of Personality", in Hunt, J. McV. (editor), "Personality and the Behaviour Disorders,', Ronald Press, New York, 1.

ORLANSKY, H. (1949), "Infant Care and Personality", *Psychol. Bull.*, 46, Number 1.

PEARSON, G. (1931), "Some Early Factors in the Formation of Personality", *Am. J. Orthopsychiat.*, 1 : 284.

PETERSON, C. H., and SPANO, F. (1941), "Breast Feeding, Maternal Rejection and Child Personality", *Character and Personality*, 10 : 62.

ROGERSON, B. C. F., and ROGERSON, C. H. (1939), "Feeding in Infancy and Subsequent Psychological Difficulties", *J. Ment. Sc.*, 85 : 1163.

SONTAG, L. W. (1935), "Prenatal Condition and Effect on Fœtus and Infant at Birth", *Am. J. Dis. Child.*, 50 : 337.

TRAINHAM, G. (1945), "Case History of the First Thirteen Months of a Pair of Twins Breast Fed on a Self Demand Schedule", *Psychosom. Med.*, 7 : 176.

FACTORS AFFECTING MENTAL HEALTH IN CHILDHOOD.[1]

By J. C. KERRIDGE,
Sydney.

MENTAL HEALTH has been defined as the ability to be comfortable, happy and efficient, and able to make satisfactory social relationships.

The title of this talk would suggest that you can separate mental health in childhood from mental health in adult life. You cannot.

There is a positive and negative side to this subject: the positive side, those factors which promote mental health; the negative side, those which lead to mental ill health.

The negative side is easier to study. For instance, the psychiatrist all too soon comes into contact with the five types of problem parent who are responsible for a very large part of, but by no means all, childhood nervous illness, namely: (i) the perfectionistic; (ii) the antagonistic, rejecting or neglecting parent (dead, divorced and drunken parents are in this group); (iii) the over-

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 29, 1955.

Some studies have been performed. Rogerson and Rogerson (1939) traced 109 children who had been observed as infants in their London clinic seven years before. Those artificially fed had experienced more feeding difficulties, poorer health and greater restlessness during infancy than those breast fed.

Hoefer and Hardy (1929) subjected 383 children, aged from seven to thirteen years, to physical and mental tests and correlated these results with the duration of breast feeding; in general they found that children who are artificially fed were, on the whole, inferior mentally and physically to the breast fed. The artificially fed children were more poorly nourished, more susceptible to diseases and slower in learning to walk and talk than were the breast-fed children.

Both these surveys were based on general populations, and no effort has been made to control the groups for factors other than the method of feeding during infancy; the inference that the artificial feeding was a causative element in the creation of the difficulties is not warranted by the data.

That ill health and feeding difficulties in infancy can often be taken as evidence of emotional maladjustment is, of course, widely recognized.

A study by Faber and Sutton (1930) supports the inference that these difficulties are not necessarily due to the manner of infant feeding. These workers compared 42 babies who had been breast fed for less than six weeks with a similar number who had been breast fed for more than forty weeks; the calorific content of the diet *et cetera* was carefully controlled. All the babies received excellent care. It was found that the breast-fed babies gained more weight during the first quarter of the year, but that this relationship was reversed for the remainder of the year.

The bottle-fed group were healthier and had fewer diseases than the breast-fed group.

If we accept the psychosomatic criterion that physical health and psychological health are apt to be correlated, this study would seem to show that artificial feeding need in no way be inferior to breast feeding in promoting the emotional well-being of infants.

Above all, the character of the mother must be evaluated before an intelligent opinion can be ventured as to whether breast or artificial feeding will better serve to promote the healthy development of the child's personality.

It would appear that it is not easy to find conclusive evidence to favour the current belief among some pædiatricians that breast feeding is inevitably more advantageous to the child from the emotional point of view than artificial feeding.

Duration of Breast Feeding.

Hoefer and Hardy in their study found that the highest ratings in muscle tone, physical and mental development, early walking and dentition, were registered by children who as infants had been breast fed for four to nine months. Those breast fed for a shorter or longer period had a lower rating.

Pearson (1931) obtained similar results in a retrospective survey of 72 children; he showed that those who had been breast fed for six months or more were less nervous, less timid and less maladjusted at school than those breast fed for shorter periods.

On the other hand, Maslow and Szilagyi-Kessler (1946) gave a security-insecurity inventory to students in classes at Brooklyn College, and correlated the measure of security with the duration of infantile breast feeding. The results showed that the highest security scores were obtained by the groups who were not breast fed, and by those who were fed at the breast for over one year.

Petersen and Spano (1941), working with nursery children, found no evidence that those children breast fed for the shortest time were less well adjusted and secure than those breast fed longer; again, in a group of normal children studied there was no relation between the duration of breast feeding and child personality at the nursery school level, or with adjustment at the pre-adolescent stage.

Since breast feeding is so frequently considered *de rigueur* from the emotional point of view, the views of Gesell and Ilg (1943) seem worth stating:

> It is probable that the nervous system of the modern infant is adaptive enough to meet most of the demands made by new modes of nutrition. Indeed, oncoming generations of infants by virtue of these changes may even acquire emotional patterns of self dependence which will ultimately add to the mental stamina of the race and form personalities better suited to the stresses of civilisation.

All that can be said from the foregoing studies is that there is no linear correlation to be observed between the duration of breast feeding and the major aspects of personality studied.

Self-Demand versus Scheduled Feeding.

We are all aware that in recent years there has been a shift of opinion in many circles in favour of self-demand feeding, in which nursing always rewards the child's crying. It is thought that this régime is better calculated to produce a confident, unneurotic personality than is the rigid, regularly scheduled feeding in which the clock rather than the infant sets the nursing time.

We read statements such as that of Mowrer and Kluckhorn (1944): "The parent who responds to a clock rather than to the behaviour of the child is, from the child's point of view, not responsive at all." If the rewards a baby receives bear no constant relation to this behaviour, it is held that an apathetic, or an anxious, or even a hostile individual is likely to result. One's own experience is inclined to agree with these views, and in practice it has been found that a modified policy of self-demand feeding is both practicable and satisfying to both mother and child.

However, we must realize that such statements as those mentioned are to be regarded as hypotheses, not facts. There appear to be only two studies dealing with this subject. It is well known that only a few years ago the best "scientific opinion" favoured scheduled feeding to promote healthy personality development, and this view is still fairly widespread in the medical profession. We know that even very young infants learn to adjust their sleeping and eating habits to a schedule of regular feeding, and it would seem that this regularity might serve to promote a feeling of security and confidence on the part of the child just as much as any other feeling.

The two studies mentioned above were the following: (i) Miss Trainham (1945) reported on a study at the Merrell Palmer School; two groups of children were chosen, one group on self-regulated feeding and the other group on scheduled feeding. The parents of both groups were similar. The results suggest in a very striking way that those children on self-demand feeding were in all categories of the tests more advanced in their development. (ii) Dr. Escalona (1945) has conducted similar studies and has arrived at opposite results. Both these workers used very small groups, and neither study would stand up to statistical analysis.

It must be emphasized that these two studies appear to be the only ones in the literature. When looked at coldly they surely cannot be of much value; yet self-demand versus scheduled feeding is always good for an emotional argument.

Nothing is so easy to manufacture as a theory to explain a particular empirical finding.

Our means of measuring personality are not very adequate; our knowledge of its genesis is even less adequate.

Weaning.

It is difficult to find experimental data correlating different forms and times of weaning with aspects of personality.

In our society weaning takes place over a fairly short period of time and may be classified as trauma. Freud

(1933) conceives it as an invariably painful experience for the child. He takes the view that the infant has an insatiable yearning for the breast. Perhaps this is an adult "reading in" of emotion into the young infant, because it is difficult to see why the purely physiological sucking capacity of the neonate cannot be satisfied as well on the artificial nipple.

Of course it is argued that the trauma a child suffers when removed from the breast is not just a matter of withdrawal of nourishment, but also warmth and affection with the mother's breast. When weaning disrupts a series of satisfactions, which the child has been receiving regularly, it would be surprising if he did not react emotionally to this deprivation. We might think that late weaning would be more traumatic than early weaning, since in the former case the child would be more firmly attached to the satisfaction of breast feeding. However, the psychoanalysts tell us that the developing child's ego is better able to withstand this trauma at a later age, and this results in self-assurance and optimism. On the other hand, it may be argued that weaning, whether at the early or late stage, cannot be said either to weaken or strengthen the child's sense of security until the entire situation in which the act takes place has been appraised.

Sphincter Training.

The anal-erotic or compulsive character is the most clearly drawn picture in Freud's album.

Freud's idea is that the infant derives a great deal of exogenous pleasure from its bowel movements, and when we inhibit this pleasure by severe bowel training the usual result is reaction formation; there is limitation of all his primitive impulses and pleasure-seeking activities, leading in severe cases to parsimony, stinginess and meticulousness.

Some psychiatrists have formulated a system which directly correlates adult character traits with specific forms of sphincter training in childhood.

It appears that the child who has been trained in continence of urine and fæces slowly and without pressure will yield control over his eliminations without anxiety or resentment; but a precocious or harshly coercive training that forces the child before he is psychologically ready to release to outside demands will set up resistance and accentuate retention as a defensive response. However, when we come to examine evidence for this influence of sphincter training upon personality development, we find that the data are too meagre either to substantiate or to disprove Freud's theory.

Huschka (1942) studied the reaction of 213 problem children to the imposition of bowel training. She considered the training as coercive if it commenced before the age of eight months and was concluded before the age of eighteen months. Huschka found that children so trained often manifested undesirable responses such as constipation, fear and rage. However, this survey was poorly controlled, and there was no follow-up investigation to ascertain permanent effects upon personality.

The few other studies of this subject reported in the literature are equally poorly conceived and controlled. Orlansky (1949) points out that only some twenty years ago a standard text-book of psychology advocated bowel training from six weeks. The shift of opinion that has taken place in the past decade must be regarded as due to a "middle class fashion" of the times, rather than to a conclusive scientific validation of the preferability of later sphincter training.

Conclusion.

Everyone must surely agree that the evidence both for and against the influence of these various aspects of infant management is very poor indeed. The number of studies carried out and the number of children studied are both very small. In most of these studies there has been no attempt to control many factors which must obviously play an important role.

Margaret Mead (Benedict, 1949), when commenting on Benedict's article concerning the effect of swaddling in European countries, makes the following statement: "We found that it was not possible to make any simple cross cultural statement, such as toilet training, or long nursing, or sudden weaning, would have a single predictable effect in later character." It has become increasingly clear that it is necessary to include a variable loosely described as "tone of voice" or the quality of personal relationship within which a given mode of behaviour is indulged or frustrated.

One feels strongly that many theories of infant management and their effect on the child's mental health, which are frequently and emotionally propounded, are yet to be proved, and that a rich and productive field of research lies open to all of us in this subject.

References.

ALDRICH, C. A. (1947), "The Advisability of Breast Feeding", *J.A.M.A.*, 135 : 915.

ESCALONA, S. K. (1945), "Feeding Disturbances in Young Children", *Am. J. Orthopsychiat.*, 15 : 76.

FABER, H. K., and SUTTON, T. L. (1930), "A Statistical Comparison of Breast-Fed and Bottle-Fed Babies During the First Year", *Am. J. Dis. Child.*, 40 : 1163.

FREUD, S. (1933), "New Introductory Lectures on Psychoanalysis", Norton, New York.

GESELL, A., and ILG., F. L. (1943), "Infant and Child in the Culture of Today", Harper, New York.

HOEFER, C., and HARDY, M. C. (1929), "Later Development of Breast Fed and Artificially Fed Infants", *J.A.M.A.*, 92 : 615.

HUSCHKA, M. (1942), "The Child's Response to Coercive Bowel Training", *Psychosom. Med.*, 4 : 301.

MASLOW, A. H., and SZILAGYI-KESSLER, I. (1946), "Security and Breast Feeding", *J. Abnorm. & Social Psychol.*, 41 : 83.

MEAD, M. (1949), in BENEDICT, R., "Child Weaning in Certain European Countries", *Am. J. Orthopsychiat.*, 19 : 342.

MOWRER, O. H., and KLUCKHORN, C. (1944), "Dynamic Theory of Personality", in Hunt, J. McV. (editor), "Personality and the Behaviour Disorders," Ronald Press, New York, 1.

ORLANSKY, H. (1949), "Infant Care and Personality", *Psychol. Bull.*, 46, Number 1.

PEARSON, G. (1931), "Some Early Factors in the Formation of Personality", *Am. J. Orthopsychiat.*, 1 : 284.

PETERSON, C. H., and SPANO, F. (1941), "Breast Feeding, Maternal Rejection and Child Personality", *Character and Personality*, 10 : 62.

ROGERSON, B. C. F., and ROGERSON, C. H. (1939), "Feeding in Infancy and Subsequent Psychological Difficulties", *J. Ment. Sc.*, 85 : 1163.

SONTAG, L. W. (1935), "Prenatal Condition and Effect on Fœtus and Infant at Birth", *Am. J. Dis. Child.*, 50 : 337.

TRAINHAM, G. (1945), "Case History of the First Thirteen Months of a Pair of Twins Breast Fed on a Self Demand Schedule", *Psychosom. Med.*, 7 : 176.

FACTORS AFFECTING MENTAL HEALTH IN CHILDHOOD.[1]

By J. C. KERRIDGE,
Sydney.

MENTAL HEALTH has been defined as the ability to be *comfortable, happy and efficient, and able to make satisfactory* social relationships.

The title of this talk would suggest that you can separate mental health in childhood from mental health in adult life. You cannot.

There is a positive and negative side to this subject: the positive side, those factors which promote mental health; *the negative side, those which lead to mental ill health.*

The negative side is easier to study. For instance, the psychiatrist all too soon comes into contact with the five types of problem parent who are responsible for a very large part of, but by no means all, childhood nervous illness, namely: (i) the perfectionistic; (ii) the antagonistic, rejecting or neglecting parent (dead, divorced and drunken parents are in this group); (iii) the over-

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 29, 1955.

indulgent parent; (iv) the dominating parent; (v) the identifying parent, who pushes the child into situations where she can shine in its reflected glory, or wants the child to do all the things which she could not. One soon realizes that horrible parents tend to have horrible children, but there are very, very many exceptions to this both ways.

At the recent Australasian Medical Congress (British Medical Association) there were two excellent papers on the negative aspects titled "Stress in Childhood". Dr. F. W. Clements was able to show an amazing correlation between the personality of the mother and the mental health of the child, and there is much recent work to show that this is probably the major factor in the foundation of mental health, and that even the new-born baby shows amazing variations in feeding behaviour, corresponding to changes in the mental state of the mother.

Professor D. R. MacCalman discussed the effects of maternal deprivation, and in a gathering such as this I should like, for the sake of propaganda, to discuss again the effects of maternal deprivation and hospitalization symptoms; but I must confine myself to hoping that Professor MacCalman's paper will be published, and commend to you the first four chapters of John Bowlby's book "Child Care and the Growth of Love", and an article by Örsten and Mattson in *Acta pædiatrica* of January, 1955.

Positive factors are harder to study. Children with an abundance of positive factors in their lives do not come to psychiatrists and child guidance clinics.

Perhaps we can get some help by considering what happens to children exposed to other cultures than our own. Here again we are in difficulties, trying to decide whether different practices in child training are causes or consequences of differences in personality or culture patterns. They would seem to be both. For instance, we wonder with Schaffner whether "insistence on obedience within the German home is the origin or the reflection of the widespread emphasis on discipline or obedience allegedly characteristic of German culture".

In 1946 Weston La Barre pointed out that the Chinese encountered in China were mature and possessed a sense of well-being and an indestructible cheerfulness. He attributed this to the fact that the Chinese are well mothered and have an excellent parent-child relationship, in which the Chinese mother supported her child, instead of adopting occidental techniques of interference and neglect.

This emotional stability does not seem to be due to the Mongoloid strain, because Maloney, when he was inducting Californian Chinese into the United States army, found that the American-Chinese was an exceedingly neurotic individual, with acute attacks of anxiety and psychosomatic symptoms. Nevertheless it is well known that among the American-Chinese there is practically no juvenile delinquency.

Ruth Benedict describes the bringing up of the Japanese child. Toilet training is severe, early, and associated with attempts to inculcate an extreme reverence for the father. When the father comes into the room, the mother pushes the infant's head down in an obsequious nod, and later the child is shamed if he shows any infantile or childish tendencies. He is early introduced to the Japanese institution of *Jicho*, which means "doing what is expected of one"; this means fitting into the family scheme and political pattern. The most grievous error one could commit in Japan would be offence against *Jicho*. Children's subservience to the father becomes broadened into subservience to the Emperor.

If by the age of four or five years the Japanese child has not thoroughly surrendered his independence, *Moxa* (the placing of burning powder on the skin) is performed on him. Benedict remarks that usually the child requires one such treatment and at the most two.

When Cotton and Ebaugh made a survey of the psychiatric hospitals in Japan they found that the most psychotic of the inmates were often separated from one another only by a thin sheet of glass. They came to the conclusion that the Japanese had been indoctrinated in non-assertiveness so early in their lives that, even when they were psychotic, they were incapable of individually sponsored aggressive destructible behaviour. The words "individually sponsored" should, I think, be stressed.

Manus Island children, especially boys, are almost completely given way to by a kind, indulgent, complaisant father. They demand what they want, and shout and have tantrums till they get it. This reminded me irresistibly when I read it of some United States children. The ideal Manus man has no leisure; he is ever up and about his business, turning five strings of shell money into ten. The chief preoccupations are work, wealth and sex. I must say that this also rather reminded me of the United States.

In the Aitape-Wewak area of New Guinea live two rather hackneyed but convenient tribes, the Arapesh and Mundugumor, who have been described by Margaret Mead. They have almost diametrically opposite practices of child raising.

The Arapesh child is never far from someone's arms in his first years. When the mother walks, she carries the baby at her waist in a sort of cuddle-seat, and comforting human skin and voices are always close. A child's crying is a tragedy to be avoided at all costs, and children are suckled whenever they cry. Suckling is a long, easy game. Any absence is followed by a prolonged breast feeding. Weaning is very late and gradual, and even a child who has been weaned for some years will be offered the breast if upset or angry.

The Mundugumor child, on the other hand, is born into a hostile world; because of tribal custom it is a disadvantage to have a child, and many children are killed at birth. Very little babies are kept in a stiff, dark basket, and have to lie prone with their arms pinioned to their sides and are left hung up in the house as much as possible.

The child has to cry vigorously before he is fed, and he is kept to his major task of absorbing food, and the moment he stops suckling for a minute he is returned to his prison. The babies develop a very purposive fighting attitude, hold firmly onto the nipple and suck as vigorously and rapidly as possible, so that they frequently choke, which angers the mother and infuriates the child. Thus the suckling situation is characterized by struggle and anger. They are weaned early and vigorously by being thrust and slapped away from the breast, and soon settle down disconsolately to sago soup. Strangely enough, very few of them seem to suck their thumbs.

The Arapesh adult has a placid, gentle, contented personality, warm, docile and trusting. All tasks are done by the whole village in cooperation, and any competition is frowned on. The Arapesh have to be pushed into any executive jobs, and retire as soon as possible. When greatly upset they burst into tears.

The Mundugumor adults are gay, hard, arrogant people, until recently cannibals and head-hunters. Because of their ferocity and recklessness they are held in terror by their neighbours, and thus have the richest land in the area. They are intensely competitive and quarrelsome, and are ruthless individualists. Amongst themselves there is very great mutual distrust, brothers frequently take arms against brothers, and they view the visits of relatives with suspicion and hostility. If greatly upset and insulted, they take a canoe and float down the river, and the people next down the river capture the canoe and eat the angry suicide.

Maloney described the conditions found in Okinawa. Here the mothers are never separated from their children till they are quite old, breast feed the child whenever it is hungry or in pain, do not institute bowel training, use no corporal punishment, and treat the child as a human being who during the first months of his life has more rights than an adult. Maloney describes a very low incidence of mental ill health and psychosomatic disease, and states that the American army doctors did not see shock reactions. There were very few peptic ulcers;

allergies, coronary heart disease, hypertension and arteriosclerosis were very rare, and diabetes and arthritis were practically non-existent. This seems almost too much to accept wholeheartedly, but is at least suggestive.

We seem to be getting some definite indications here; and then Kluckhorn spoils a pretty theory by pointing out that Navaho children are brought up with a maximum of protection and gratification, with much real affection. Infants are well treated and well fed, weaning is late and gradual, and toilet training is neither strict nor premature. We might expect the adult Navaho to have calm and beautifully adjusted personalities; but in actual fact they have a high level of anxiety, with states of morbid melancholia and endemic uneasiness, and are constantly preoccupied with fears of witchcraft. However, all observers agree that they are a very pleasant, kind, nice people.

At this juncture I realized that despite my definition I did not have a really clear idea of what mental health is. It seems to be a relative thing. For instance, I think that the gentle Arapesh would have a pretty tough time in Sydney, whereas I have a shrewd suspicion that the Mundugumor might achieve considerable success.

Again, to quote Ruth Benedict:

> Arrogant, unbridled egotists are well known in every community. Like the behaviour of Puritan divines their courses of action are often more asocial than those of inmates of penitentiaries. In terms of the suffering and frustration they spread about them there is probably no comparison. There is very possibly as great a degree of mental warping. Yet they are entrusted with positions of great importance and influence and as a rule are fathers of families. They are not described in manuals of psychiatry because they are supported by every tenet of our civilisation.

I emphasize the fact that this is a quotation, lest it should be thought that I am trying to comment on the local or national political scene.

Do we regard these people as possessing mental health? Should we try to bring up our children so that they will be successful in the same way?

Karen Horney points out that "our values contain many contradictions and conflicts—We expect of our children both independence and conformity, we believe in progress and also in the status quo; we glorify competition and also advocate the golden rule".

As far as I can see, we still do not quite know what goal we are aiming for in bringing up our children. Fortunately this problem is made less pressing, because if we did know our goal we still would not know what child-training methods to adopt to bring it about.

The debate is not new. The Venerable Bede chronicles that in A.D. 597 Saint Augustine wrote to Pope Gregory asking when children should be weaned, saying that the uncouth English required guidance on these matters. I am glad to say that Pope Gregory in his reply advised against early weaning. Still earlier, Pliny recorded the concern the ancients felt about bed-wetting; but it is very difficult to approve of the remedies he suggested.

Since 1914 the United States Children's Bureau has issued a publication to expectant mothers entitled "Infant Care". This corresponds to our own "Our Babies". Since 1914 there have been seven editions, and succeeding editions have shown some surprising changes in outlook and advice.

Martha Wolfenstein has summarized the indecision as follows.

In the first edition (1914-1921) the dangers of the child's impulses were acutely felt. Thumb-sucking and masturbation, if not promptly and vigorously interfered with, would grow beyond control and permanently damage the child. Whilst he was in bed he was to be bound down hand and foot so that he could not suck his thumb, touch his genitals, or rub his thighs together. ("The baby's hands should be set free now and then, especially if he is old enough to use his hands for his toys, and at meal times to save as much unnecessary strain on his nerves as possible, but with the approach of sleeping time the hand must be covered." This for thumb-sucking or masturbation.)

In the next period, 1929 to 1938, autoerotism seems less dangerous. Now it is bowel training which must be carried out with great determination as early as possible. This is accompanied by a pervasive emphasis on regularity, everything being done by the clock. Weaning and the introduction of solid foods are also to be accomplished with great firmness, without a moment's yielding to the baby's resistance. The main danger which the baby presented at this time was that of dominating the parents. Successful child training meant winning out against the child in the struggle for domination.

In 1942-1945 all this is changed. The child becomes remarkably harmless, in effect devoid of sexual or dominating impulses. His main active aim is to explore his world; autoerotism is an incidental by-product of such exploration. When not engaged in his exploratory undertakings the baby needs attention and care; and giving him these when he demands them, far from making him a tyrant, will make him less demanding later on. At this time mildness is advocated in all areas; thumb-sucking and masturbation are not to be interfered with; weaning and toilet training are to be accomplished later and more gently.

In the current edition, 1951, there is an attempt to continue this mildness, but not without conflict and misgivings. Autoerotic activities become even more harmless and negligible. Sucking is a permissible though low-grade pleasure (a poor substitute for being held or fed or talked to), and the pacifier (dummy) (explicitly taboo in 1914-1938, not mentioned in 1942-1945) is now restored. Masturbation is mentioned only in connexion with toilet training. While on the toilet, the baby may touch his genitals. This does not amount to anything (not even pleasure), but if it bothers the mother she may give the child a toy. Here the tolerance for autoerotism seems to require increasing denial of its nature. Requirements in toilet training become even more easy-going than in the preceding period. But the anxiety of 1929 that the child may dominate the parents reappears. If one picks up the child whenever he cries, he may become a tyrant. And in the area of toilet training gentleness is urged, out of the consideration that if the mother tries to be tough she cannot win; if she seems to be fighting the child, he can really hold out against her.

Thus the advice on autoerotism and toilet training has been reversed, and the attitude to the child's possibly becoming dominating has changed from one extreme to the other and is changing back.

I thought it might be interesting to compare some points of the official American advice in "Infant Care" with the official Australian advice in "Our Babies". I think both publications are very good:

TOILET TRAINING:

Australia: Start at 6 weeks.
America: Do not start till 18 months.

WHEN BABY CRIES:

Australia: A good cry won't hurt baby. It exercises his lungs. If picked up too much it may make him into a little tyrant.

America: Don't be in too much of a hurry to lay him down again. "Don't expect him to pay any attention to your convenience."

Both publications stress that one should investigate to make sure there is no cause for the crying. Neither commits itself as to exactly how long one should let the baby cry before investigating, but the Australian seemed to imply waiting a half-hour and the American seemed to imply investigating forthwith.

DUMMIES:

Australia: "Our Babies" is very hot on the subject of dummies and calls it "The Dangerous Dummy" in its biggest print.

America: "Infant Care" permits their use and almost suggests them for the colicky baby, but conceals this advice at the end of a long paragraph.

FEEDING:

America: Let the baby have the chance to develop a feeding rhythm of his own. A baby's hunger is the best clock to go by.

Australia: The importance of regularity in feeding the baby is stressed. A baby that has been fed regularly from birth will awake at the appointed hour.

Both countries are in accord on weaning, and both publications show a sympathetic attitude to thumb-sucking and bed-wetting.

Anna Freud in a recent paper points out that psychoanalytic thought has gone through two phases in relation to the prevention of mental illness by enlightened upbringing. There was first a period of optimism, when almost the whole blame for the neurotic development of the child was laid on parental actions, such as wrong sleeping arrangements, prohibitions of sexual expression, ban on sexual curiosity, threats of castration, abuse of parental authority *et cetera*. It was hoped that modification of these attitudes would do away with infantile anxiety and consequently abolish neurosis. These hopes were excessive. In another place Miss Freud has spoken of the efforts made to bring up children without thwarting so that they would not be frustrated. These children turned out to be just as prone to anxiety as other children, and were in addition rather horrible children. The second phase, existing at present, has been a period of pessimism, during which the origin of neurosis has been recognized as due not to environmental influences, but to inevitable factors of various kinds, such as the following: (*a*) qualitative innate factors, such as bisexuality, which results in unavoidable deep conflicts between internal strivings; (*b*) quantitative innate factors, such as the insatiable character of the infant's instinctive demands, leading to painful and pathogenic frustrations; (*c*) frustrating situations which no child can escape, connected with weaning, toilet training, sibling rivalry and the conflicts of the œdipal phase. Thus we are all innately neurotic; but this does not mean that adverse life situations cannot expose weaknesses and bring out symptoms which otherwise would remain latent.

Here I should like to protest in a heartfelt manner about the common concept of the child psychiatrist. A high proportion of otherwise intelligent people seem to think that he is a person who believes that children should never be punished,, should be allowed to do as they like, and should never be frustrated lest they develop repressions. This attitude is about twenty-five years out of date; but some parents who pride themselves on being enlightened, scientific and up to date are still endeavouring to apply it. Even at that, I think it is probably better than the Victorian idea that the child's first duty was to be unhappy and its second to help its pompous and self-satisfied father to increase his self-esteem.

Spontaneity and flexibility are still good things, but unfortunately are often misconstrued as licence and chaos.

The question of punishment is topical at the moment. Punishment is a very difficult subject to discuss dispassionately. It is hard to know when advocates of punishment are not rationalizing their own aggression and projecting their own guilts, and when the violent opponents of punishment are not over-compensating for their own aggression. I suspect that the perfect parent would never need to use punishment, but I am sure that I shall never have the opportunity to test this hypothesis, and that in most families punishment will occasionally be necessary. As far as possible it should be reserved for emergencies such as running across traffic. I am quite sure that a quick slap in honest anger does less harm than containing one's anger and sulking at the child for the rest of the day.

The recommendation that you should wait till your anger has cooled before you punish a child would seem to me to require rather an odd, cold-blooded person. Anyway, punishment for its best effects should be closely associated in time with the offence.

Punishment should wipe the slate clean and let the situation start off fresh.

Punishment should not be severe, but should be consistent. An absolutely certain slap is far more effective than an unpredictable hiding. It is not necessary that the child should cry.

I think that children get some support from being punished when they know they deserve it, and that a child who "gets away with it" is often uneasy and confused, and imagines a far more severe and frightening punishment for itself.

It is far better to err on the side of too little punishment than too much, and certainly one of the most difficult therapeutic problems is an over-punished, crushed, dispirited child.

Discipline is admirable, but punishment is only a small part of it. By far the greater part is to be a worthy example to one's children, so that they can make a satisfactory identification through love and respect and not fear.

> For instance, I have a small patient whose not oversympathetic stepfather is an S.P. bookie. When she is punished she threatens to tell the police about his occupation.

Some children may need more punishment than others, but it is terribly important to remember that these will be the very children who need more love. Punishment and love should not have a reciprocal relationship. I almost think that the main value of punishment is that it clears away morbid emotion that otherwise might block the outflow of love.

The child who needs more punishment needs more love.

Aldrich describes current child-raising practices as a "curious mixture of folklore, taboo, religious custom and scientific doctrine". We have to be dogmatic in advising most parents, but should try to avoid believing too rigidly in our own pronouncements. Certainly there is no royal road. All children and families are different. The régime which suits a passive, easy-going child may be quite toxic for the type of child which Aldrich calls a "sparkler"—the type of baby who defends himself more actively, struggles more valiantly against restraint, and wants things more imperatively than the average baby. On the other hand, his appreciation when his needs are satisfied is equally keen, so that handled with respect he becomes highly responsive and fairly sparkles with the zest of living. When placed in a rigid and unsympathetic régime he becomes a typical spoiled child, screaming or whining until his desires are appeased, and if this rigidity is continued he may subside into a stubborn, sullen objector.

The plight of a placid, easy-going child confronted with a sparkling parent is also difficult. The trend today seems to be towards a plastic flexibility, as exemplified by Aldrich, Spence and Spock.

For instance, in regard to feeding, I myself would be an advocate of the modified demand system—part of the time when the baby demands it and part when the mother demands it. Escalona points out that breast feeding is to be preferred; but in some cases in which the mothers have some conflicts and anxieties about breast feeding, bottle feeding may go ahead perfectly satisfactorily.

Similarly in regard to what to do when the baby cries. I would agree pretty well with the clinic regulations; but if the crying is going to work the mother up into an anxious nervous frenzy, it is better for her to pick up the baby and soothe him and let him take his chance of becoming a tyrant.

I am not quite able to follow the logic of those who contend that the baby should be left to "cry it out", as he has not sufficient awareness or intelligence to be really affected by it, and should not be picked up because he is so full of cunning that he will quickly learn to dominate his mother.

Again I believe that usually the baby is best with his mother as much as possible; but occasionally there are those immature mothers who use the baby more to satisfy their own libidinal needs by physical contact and having the baby respond to their approach, and finish up "loving their babies to death". Escalona's observation shows that such babies become tense and irritable and lag in their development. These babies need at least some protection against their mothers.

The important thing is the general atmosphere—not isolated incidents. Most children can stand quite a lot of mishandling, especially if they get enough love.

The general goal to aim at is relaxed attitude about the whole affair. Having the second baby first would be helpful. Having a larger family aids the development of this relaxation. I think there should be at least three children in all families, one for a start, second to stop him from being an only child, and the third for a spare in case anything happens to one of the others.

I am quite sure by now that it is better for parents to be relaxed, spontaneous and wrong than anxious, calculated and correct.

Again, it matters not only what you do, but what the other parents in the street or suburb or group do. There is a very wide variation between parents' practices. If Johnny cannot go to the pictures on Saturday afternoon and Jimmy next door can, or if Johnny has to run messages for his pocket money and Jimmy does not, Johnny is going to feel aggrieved and put upon.

Similarly in Sydney (although I can speak from only a small series of cases) there is a great difference in the reactions of parents to discovering their three to five year olds involved in sex play. In Hurstville they get a thrashing; on the North Shore line they call in the doctor; at Vaucluse they boast about it at the golf club.

I think many children of New Australian parents suffer from receiving a more rigid European type of upbringing when associates are being treated in a more easy-going Australian way. It has been suggested that perhaps the wear and tear on parents and children might be reduced if some code of standards could be adopted and accepted by both.

It really all boils down to trying to give the child a feeling of security. As far as I can summarize it, the important things seem to be giving the child a chance to learn independence by avoiding over-protecting and coddling, showing some respect for his wishes and feelings, and realizing that he is not just plastic clay to be moulded.

Show an interest in what he is doing and trying to do. Answer his questions frankly, and realize that the old Victorian idea of the angel child is not quite correct, that the child must be expected to show some evidence of animal impulses of aggressive, sexual or excretory origin, and that if he does he is not necessarily a potential criminal or pervert.

Do not push him beyond his capacity. Treat him as normal and healthy as far as possible. The goal is improvement, not perfection. Above all, let the child know by actions as well as words that he is loved, wanted, and accepted as he is.

To conclude, I should like to close with a quotation which I owe to Maloney. It is taken from the wall of an ancient Taoist temple:

> The Three Hundred Rules of Ceremony could not control men's natures. The Three Thousand Rules of Punishment were not sufficient to put a stop to their treacherous villainies. But he who knows how to cleanse the current of a stream begins by clearing out its source. And he who would straighten the end of a process, must commence with making its beginnings correct.

THE TREATMENT OF TIC DOULOUREUX.

By DOUGLAS MILLER,
Department of Neurosurgery, Saint Vincent's Hospital, Sydney.

IN any discussion of *tic douloureux* it is necessary to define one's terms. Much confusion is caused by people misnaming complaints as *tic douloureux* and claiming cures and successes which are spurious, the treatment being ineffectual when applied to the real disability. In order to diagnose any pain as *tic douloureux*, it must be strictly limited within the trigeminal zone, be on one side only, be spasmodic and inveterate, and be characterized by areas of initiation best called "trigger zones". The vast majority of cases conforming to these requirements are in elderly people, usually aged over sixty years, and it is not uncommon for the complaint to start in the eighth or even the ninth decade.

Trigeminal neuralgia occurring in the young is very rare and should be suspected of having an organic background. In planning treatment for *tic douloureux*, one must bear in mind that the pain is overwhelming, probably the worst pain known to human experience, that it is inveterate, that it never resolves for long or undergoes permanent natural cure, and that it occurs usually in the aged. These dominating facts must guide rational treatment. No practitioner can be justified in prescribing totally useless nerve sedatives or in buoying up the unfortunate patient with groundless hopes of natural cure. That is an unintentional cruelty too often practised.

When once the diagnosis is made—and that may be as soon as one sees a spasm of pain or listens to the unmistakable story told with a mask-like expression, begot from the fear of a spasm—a definite and firm plan of treatment must be outlined and undertaken. Time must not be wasted in righting every disorder of the teeth, jaws and naso-pharynx. One must, of course, rule out the possibility of some gross organic background, though this is to be done with discretion and with a sense of clinical proportion. I am sure that it is quite wrong to stretch some elderly sufferer on the rack of full neurosurgical investigation when all judgement and experience indicate that no abnormality will be found. However, when something atypical gives the picture a twist—as, for instance, evidence of organic damage to the nerve, or involvement of other cranial nerves—it is well to advance cautiously.

In the young, though the picture may be typical, there is almost always some other element in the background. I could quote as examples *tic douloureux* occurring in disseminated sclerosis, or a recent case in which an audible bruit was discovered in the head and found to be due to a large arterio-venous anomaly in the posterior fossa. One might, of course, argue that, even though some pathological basis might be discovered, the treatment of the painful tic would usually be conducted along the same lines.

It is an interesting fact that no lesion in the peripheral part of the nerve appears to produce a typical tic-like picture, but that irritation of the sensory root alone has this faculty.

Until the development of modern surgical treatment, no relief or hope could be offered to these unhappy sufferers. The appalling nature of the complaint was known back through the ages, and in the ancient cathedral of Wells it is interesting to recognize the graven images of sufferers committed to memory in stone. Here they adorn the tomb of Bishop Button, the second Bishop of Wells, who died in 1274; this for some reason was regarded as a place of pilgrimage for sufferers from neuralgia. After this age of faith, and until our own day, there was but little hope for the sufferer. In medical literature Fothergill in 1773 gave the first description of the disease.

With the dawn and development of modern surgery peripheral operations were evolved and many mutilating and mortal procedures were tried, until Krause and

Hartley described the first temporal approach to the ganglion for the purpose of extirpation. This was a major undertaking. In 1890 Horsley, with his usual advanced genius, essayed division of the sensory root, but had a fatal result. This operation was later developed by Spiller of Philadelphia and Van Gehucten of Louvain, and brought to technical perfection by Cushing and Frazier, whose name it now bears. Since then we may state that the only form of treatment for *tic douloureux* is surgical. Age is no bar, and the utmost degree of emaciation and exhaustion demand surgical rescue.

Until recently, surgical treatment was based entirely on the chemical destruction or physical division of the nerve. At present we have some reason to hope that decompression of the nerve root may be effective.

It is a fact that interruption of the affected nerve anywhere in its course will produce relief from pain, but permanent relief will be gained only by interruption proximal to the ganglion. Peripheral interruptions, either by injection or by nerve avulsion, though immediately effective, last usually a few months, or at most a year or two, and the pain then recurs. The great disadvantage of this is that the addition of months or years to the age of the patient may have made more radical treatment more dangerous. I think there are but few indications for temporary surgical cure. If the patient is exhausted, demoralized and incredulous of any medical benefits, this state of affairs can rapidly and almost painlessly be overcome by peripheral injection. Another reason for using peripheral injection may be to test, as it were, the *bona fides* and reactions of the doubtful personality to the sensation of numbness. Repeated peripheral injections become less effective than the first. Peripheral avulsion of the nerves has been tried, but has the objections that a full anæsthetic is required and recurrence is certain. In the case of pure first division tics, in which one is loath at first to divide the nerve root, and in which alcohol injection is not so satisfactory, peripheral avulsion may serve a useful purpose.

There is no doubt that most patients with true "tic" are worn out and terrified by it, and that once it has been explained that the condition will never be cured spontaneously or by simple methods, they plead for a line of attack which will be effective and final. We then have to consider the problem posed by this demand. Are we to use alcohol destruction of the sensory root, or are we to advocate surgery? This may to some extent be a matter of prejudice and experience. Let it be said firmly that we are not justified in advocating either method unless we are able to carry it out virtually with no mortality.

It is in favour of injection that it must be performed on the conscious patient, and therefore avoids general anæsthesia. It avoids cutting and blood loss and is never associated with consequent facial palsy. Against these arguments are the considerations that it may be, and usually is, a most distressing performance, and that it cannot discriminate within the nerve and so spare some part of the sensory root or the motor root. In inexperienced hands, of course, considerable other damage may be done. The danger of eye complications is almost the same as with surgery. Properly made injection into the *pars triangularis* of the sensory root and proximal to the ganglionic cells will be effective and lasting. The alcohol destroys the fibres, and retrograde degeneration of the sensory tract occurs in the medulla.

It is my practice to treat by injection only those patients who could not for some reason have a general anæsthetic, or who refuse operation. The recommendation for operation has usually to be made in the face of an opposition unique in surgery. There are but few patients who have been told that their awful malady can be cured, but there are practically none who have not been warned and terrified by all and sundry, and often even by doctors, that operation, if not fatal, results in paralysis of the face, loss of the eye, intellectual disaster, to name only a few of the terrors. This traditional attitude to the operation must stem from the days before Frazier made his brilliant contribution, and it has been perpetuated by the attempts of tiros to carry out what is a tricky technical procedure. The experienced neurosurgeon must admit that a transient facial palsy is an unlikely possibility, that the eye deprived of the sensory nerve may give some trouble and will need great care, but neither of these possibilities amounts to a reason for declining effective relief from pain.

The great advantage of the operation is that it is performed under view, it is painless and may be performed on the most aged and feeble, it may be selective to the parts of the nerve affected, and it should preserve the motor part of the nerve. This is a great advantage to the patient. It will above all be final and abolish the trigeminal "tic". After either treatment, some residuum of misery may go on in the nature of paræsthesiæ and burning; but this occurs as a rule in a certain type of person, whom one may be skilful enough to detect before operation and decide to treat less radically, for such people are usually unappreciative.

There are two operative approaches to the sensory root. The temporal route, as perfected by Frazier, carries a minimum risk to life and a minimum risk of morbidity. In my personal series of about 200 cases there has been no operative mortality, though one patient died some weeks later from a deep abscess.

A suboccipital approach was introduced by Dandy and has some technical advantages; but it has the disadvantage that it is intradural, necessitates cerebellar retraction, does not eliminate risks to the facial nerve or the eye, and carries a higher mortality rate. It is now generally reserved for cases in which for some reason the temporal route is impracticable.

Some years ago Taarnhøj of Copenhagen described an operation which avoids division of the nerve and seeks to bring about cure by decompressing and clearing the nerve root as it crosses the apex of the petrous temporal bone. If this stands the test of time, it will be indeed the ideal treatment; but it is as yet too soon to make any extravagant claims. To date, something like 75% of relief has been claimed by various surgeons. Those who like to be cautious in their predictions will remark that many neurosurgeons in their days of trial have had the gratifying experience of gaining temporary success from imperfect operations.

The present position with the Taarnhøj operation would seem to be that the facts must be explained to the patient, and that he or she must make the choice between a gamble and a certainty. It must be explained that the operation may fail either soon or late, in which case a second session for section of the root becomes necessary. I think that in the aged and the feeble it is essential to play for certain cure, and it is general experience that patients are not prepared to face a recurrence of pain or further operative possibilities. In the rare instances in which *tic douloureux* recurs on the other side after one operation, this procedure must be tried. I have done this in two such cases, one over a year ago, and they have been successful. I have also done it in a few other cases, and after a short follow-up have not so far had a recurrence. Until the passage of years proves that this procedure can bring certain and permanent relief to a very large proportion of patients, it should not be advocated too strongly.

Mention should also be made of the operative measure bearing the name of Sjoquist, which consists of tractotomy of the descending tract of the fifth nerve at the level of the *calamus scriptorious*. This ingenious operation, which was born with great hopes, has too many disadvantages and risks and has not stood the test of time.

It seems at the moment that the one safe and certain cure is destruction of the nerve by alcohol or division by the Frazier operation. All other attempts, like so many forms of treatment, are apt to gain their success in the early days of trial, to "bloom like a flower, pass like a cloud and be soon forgotten".

SOME OBSERVATIONS ON THYROTOXICOSIS.[1]

By E. R. TRETHEWIE,

Department of Physiology, University of Melbourne, and the Royal Melbourne Hospital, Melbourne.

Sleeping Pulse Rate.

MOST observers would agree that the sleeping pulse rate is a valuable guide in the diagnosis of thyrotoxicosis. On the other hand, some highly competent clinicians do not place great value on its determination. The two viewpoints are not incompatible. The important feature in the evaluation of thyrotoxicosis from this estimation is the change in the sleeping pulse rate from the time when the patient was normal. This latter is usually not available, but it can be inferred from certain considerations, as will appear below.

A., aged forty-eight years, was first examined in 1938 with the symptoms of shortness of breath on exertion and some palpitation. On examination of the patient, the heart was slightly enlarged, the apex beat being in the fifth left intercostal space. The skin was warm and moist, and slight exophthalmos was present. He was a vigorous gardener, much preferred the winter and, at work, was often dressed in singlet and trousers only, even in cold weather. The provisional diagnosis was thyrotoxicosis with incipient heart failure. Investigation of the patient in hospital revealed a sleeping pulse rate of 70 per minute. In view of the level of the sleeping pulse he was regarded as not suffering from thyrotoxicosis and was discharged. With the coming winter the patient improved. During the following year the symptoms recurred. In hospital the sleeping pulse rate varied from 64 to 80 per minute. However, his pulse pressure was 64 millimetres of mercury.

A pulse rate of 55 per minute might well be this patient's normal sleeping pulse rate if his cardio-vascular system was healthy, as will appear from the following considerations. The basal pulse rate in healthy young males varies from 40 to 90 per minute, average 63. If the sleeping pulse rate in a normal subject is 70 per minute, the pulse pressure may well be expected to be 40 millimetres of mercury. With rise in pulse pressure the sleeping pulse rate normally is reduced (Marey's law). The normal basal cardiac output is 2·7 litres per minute per square metre of body surface—that is, approximately five litres per minute for this subject. An increased basal metabolic rate increases the cardiac output at rest. An output of five litres per minute with a pulse rate of 70 per minute means approximately an output per beat of 70 millilitres of blood. If in such a subject at rest the cardiac output per beat is increased to 90 millilitres, this is consistent with a rise in the basal metabolic rate of 30% with a pulse rate still at 70 per minute, if the cardio-vascular system is normal. Of course, with age the cardio-vascular system is modified, and thyrotoxicosis itself may also affect it considerably. A raised pulse pressure is a recognized sign of thyrotoxicosis. If the output per beat is increased, the pulse pressure will rise, and in this patient the pulse pressure was increased. The presumption is that this patient normally had a much slower resting pulse. With the increased pulse pressure and a sleeping pulse rate of 70 per minute, other things being equal, there was an increased cardiac output at rest, consistent with a diagnosis of thyrotoxicosis. A cardiac output of 2·7 litres per square metre per minute with a mixed venous blood containing 15 millilitres *per centum* (normal value) indicates that 8·1 litres of oxygen per square metre are used each hour if the hæmoglobin and arterial oxygen content (20 millilitres per 100 millilitres of blood) are normal. This is a normal metabolic rate. It is notoriously difficult in many elderly subjects to make a diagnosis of thyrotoxic heart failure, largely because the cardiovascular symptoms overshadow other symptoms in such subjects, the cardiovascular system being more vulnerable with increased age. However, this patient was not elderly and had symptoms consistent with thyrotoxicosis, including his cardiac signs and symptoms. The fact that his sleeping pulse rate was only 70 per minute did not render negative a diagnosis of thyrotoxicosis, for if he normally had a sleeping pulse rate of 55 per minute, which would be quite consistent with his pulse pressure, this increase could indicate a raised basal metabolic rate of 30%. These features are really expressed in Marey's law—namely, that in the healthy heart there is an inverse relation between the pulse rate and the pulse pressure—and in Gale's formula, which states that

pulse rate + pulse pressure − 111 = the basal metabolic rate.

Vascular thickening and cardiac failure will naturally militate against the full application of these principles in the individual subject.

From a consideration of the foregoing factors, operative treatment was urged after the initial examination, and subtotal thyroidectomy was performed during A.'s second admission to hospital, with resultant striking improvement for some years. The gland was slightly enlarged, red and fleshy, and microscopic examination revealed hyperplasia and involution. In some vesicles tall columnar-cell lining was present. Lymphoid collections were only of moderate degree.

Basal Metabolic Rate Determination.

Since the basal metabolic rate estimation measures the rate of oxygen uptake in the body, it should be one of the best aids in the diagnosis of thyrotoxicosis. However, it is well recognized that such is far from the case. This is true also of many instances in which the procedure has been carried out with the full cooperation of the patient and in the absence of "nervous" overbreathing. It has been found that when the basal metabolic rate is estimated on healthy scientific personnel having no treatment whatever, repeated examinations yield very constant individual figures (Cowan, 1945), and it has also been shown that phenobarbital greatly reduces the basal metabolic rate (Trethewie, 1953). On the average, the basal metabolic rate fell from a control value of −3·5% to −22% (Figure I).

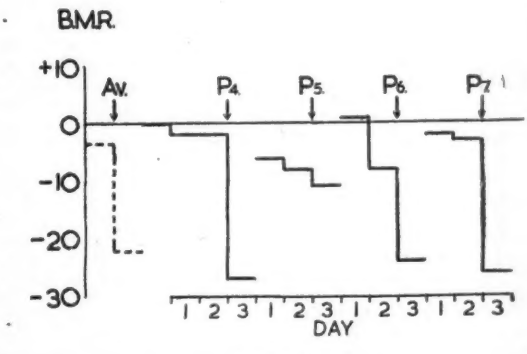


FIGURE I.

Basal metabolic rate determinations before and after barbiturate therapy. Ordinate: basal metabolic rate expressed as percentage above (+) or below (−) normal (O). Av., average; P.4, P.5, P.6 and P.7, subjects 4, 5, 6 and 7. Abscissa: days, the arrow marking the commencement of the third day. After the commencement of the second day barbiturate therapy commenced.

For patients regarded clinically as suffering from thyrotoxicosis phenobarbital is frequently prescribed, and more often than not such medication has been applied before the basal metabolic rate examination is performed. Now the reduction of approximately 20% in the basal metabolic rate described followed the taking of one grain of phenobarbital twice on the day preceding the estimation and once on the morning of the examination. Such dosage is in the range of dosage employed therapeutically, often for a longer period. Further, the effect of phenobarbital is cumulative to a degree. It would appear, therefore, that the estimation of the metabolic rate in human subjects

[1] This work was done with the aid of a grant from the National Health and Medical Research Council, Commonwealth of Australia.

taking phenobarbital is an estimation of a rate much lower than basal.

For this reason it would seem advisable to have basal metabolic rate determinations made on patients not undergoing drug therapy. The finding of an apparently normal basal metabolic rate in a patient diagnosed clinically as thyrotoxic who derives much benefit from subtotal thyroidectomy or from radioactive iodine or other medical management is quite in accord with sound physiological principles. In other words, the basal metabolic rate has not been anomalous.

It is true that Boothby and Rowntree (1923) report that phenobarbital raises the "basal" metabolic rate; but their "post-therapy" metabolic rate was taken later in the same morning and therefore could not be regarded as basal, and the effect was followed for only ninety minutes. In the present investigation the metabolic rate determinations were always made at 8.30 a.m.

Muscular Weakness.

Muscular weakness, as a symptom of thyrotoxicosis, has been well recognized for many years. Frequently the major complaint is of weakness of the quadriceps muscles on climbing stairs. Various types of weakness have been described, and it is perhaps significant that 3% of patients with clinical *myasthenia gravis* are found to be suffering from thyrotoxicosis. Now in *myasthenia gravis*, Torda and Wolff (1943) showed that blood inhibited acetylcholine synthesis, while Trethewie and Wright (1944) found that extract of thymus gland in *myasthenia gravis* inhibited the synthesis of acetylcholine, in contrast to the normal thymus gland, which greatly enhanced the synthesis of acetylcholine. This may be due to a large content of ATP in the normal thymus, since Nachmansohn and Machado (1943) have shown that ATP supplies the energy necessary for acetylcholine synthesis, and the thymus is rich in small round lymphoid-type cells, which contain much nucleic acid. It has been noted that in *myasthenia gravis* lymphoid cell collections occur in skeletal muscle. Histochemical studies of these cells have not been carried out so far as we are aware, but skeletal muscle has been obtained from a patient suffering from *myasthenia gravis* and its effect on acetylcholine synthesis tested (Trethewie, 1945). Infrahyoid muscle was used, and no inhibition of synthesis occurred. It would probably be preferable to employ muscle which is weak in the myasthenic patient for this test. Infrahyoid muscle was used in the above-mentioned case because it was readily obtained during operation for thymectomy. In thyrotoxicosis collections of small round cells may also occur in skeletal muscle, reminiscent of the collections found in *myasthenia gravis*, and it is possible that a similar mechanism for muscular weakness may occur in some patients with thyrotoxicosis as in *myasthenia gravis*. The evidence offered above suggests that reduction of preformed stores of acetylcholine from reduced synthesis of acetylcholine is the mechanism which satisfactorily explains the clinical type of weakness in *myasthenia gravis* (Trethewie and Wright, 1944). In some few instances potassium deficiency has been implicated, but not in a number of others. A possible explanation for the lack of value of thymectomy in patients with *myasthenia gravis* (though on occasions striking improvement has been reported) is that the muscles themselves, containing collections of small round cells, may produce the same reduction of synthesis of acetylcholine as does thymus tissue in *myasthenia gravis*.

Summary.

The basis for the great variation in the pulse rate in thyrotoxicosis, used as a diagnostic sign, is discussed.

An explanation is offered for the finding of anomalous basal metabolic rates in thyrotoxicosis.

Comment is made on the recognized finding of myasthenia in thyrotoxicosis.

References.

BOOTHBY, W. M., and ROWNTREE, L. G. (1924), "Drugs and Basal Metabolism", *J. Pharmacol. & Exper. Therap.*, 22 : 99.

COWAN, R. G. (1945), private communication.

NACHMANSOHN, D., and MACHADO, A. L. (1943), "The Formation of Acetyl Choline. A New Enzyme—Choline Acetylase", *J. Neurophysiol.*, 6 : 397.

TORDA, C., and WOLFF, H. G. (1943), "Nature of Myasthenia Gravis", *Science*, 98 : 224.

TRETHEWIE, E. R. (1945), unpublished experiments.

TRETHEWIE, E. R. (1953), "The Influence of Barbiturate on the Sympathetic Nervous System", M. J. AUSTRALIA, 1 : 100.

TRETHEWIE, E. R., and WRIGHT, R. D. (1944), "Acetyl Choline Synthesis and Myasthenia Gravis", *Australian & New Zealand J. Surg.*, 13 : 244.

SEVERELY DEFECTIVE HEARING IN SCHOOL CHILDREN.

By PATRICIA R. DAVEY,
Sydney.

No standards of medical classification of bilateral deafness in children are in use, and probably none is possible or desirable in a pathological group so variable in its clinical and audiological presentations. For this reason, in surveying the findings of disabling hearing defects in school children in New South Wales in the years from February, 1950, to February, 1955, no hard and fast line of demarcation could be made for inclusion or exclusion of cases of borderline difficulty. Cases in which information is incomplete have been omitted, as in some the ætiological factor claimed by the parents does not appear to be substantiated by solid fact.

A group of 228 children born since 1938 has been included in this review, which comprises only a sample of the children with defective hearing in the State. The children were drawn according to their educational placement from an oral day school for deaf children, from classes designed for the partially deaf and the deaf in schools for the blind, and from ordinary schools. In culling suitable subjects from those in classes with normal hearing, it was necessary to exclude the great number of children suffering from high-tone deafness due to post-natal morbilli and those associated with central nervous lesions occurring in the pathological sequence of kernicterus. From the practical aspect, most of the patients included suffer from hearing losses warranting the use of an individual hearing aid, or from total loss. An effort has been made to demonstrate the proportion of cases in which prenatal rubella was the ætiological agent, in contrast to all other causes as a group. In the latter group many cases are apparently genetic in origin.

TABLE I.

Findings in a Random Sample of 228 Deaf Children of School Age Born Since 1938.

Group of Children.	Known Ætiological Factor.	Associated Lesions.		
		Visual Defect.[1]	Heart Lesion.	Heart Lesion and Cataract.
Receiving specialized schooling: 148	Rubella, 71 Other causes, 77	21 (15·0%)	12 (9·0%)	3 (2·0%)
In ordinary schools classes: 80	Rubella, 36 Other causes, 44	3 (3·75%)	3 (3·75%)	0
Combined totals of first and second groups: 228	Rubella, 107 Other causes, 121	24 (10·5%)	15 (6·5%)	3 (1·3%)

[1] Visual defects: congenital cataract, seven cases; strabismus, six cases; glaucoma, two cases; refractive errors (known), six cases; total, 21 cases.

Objections that this grouping tends to emphasize educational progress is met by the clear demonstration in this particular sample of the influence of the medical and pathological background of the material presented to the

educator. It is noteworthy that in the sectional analysis the group requiring the most highly skilled and specialized teaching includes the patients with lesions affecting other systems or special senses, notably vision.

In this latter group estimates of mental ability have given figures varying from 130 to 76 by the Hiskey Nebraska test. These results are fairly comparable with the results of intelligence testing by the accepted methods in children with normal hearing, and the spread would seem to be in line with that in the general population.

In assessing the achievement of these children to date, socially and educationally, it is necessary to bear in mind the fact that the teaching of the deaf in Australia has only recently become wholeheartedly oral, and that the value of pre-school guidance for parents and of training of the child at the correct developmental time for speech and hearing is only now being appreciated in this country. Moreover, World War II completely disrupted the existing services, and many children needing special education received no attention until they were six years old. In view of these factors and the learning ability demonstrated by the Hiskey Nebraska figures, there is no reason to postulate congenital mental defect. Children whose severe hearing defects are diagnosed at the age of two years and who receive adequate tuition for training of hearing and speech development progress very favourably, whatever the ætiology. Appreciation by the teachers of the basic pathology and its relation to teaching methods has helped greatly.

The most notable successes and failures have been the cases of combined visual and hearing defects, especially when bilateral congenital cataracts were present. When parents have faced up to their responsibilities, and teachers have applied themselves, despite the patients' almost total deafness, education has been able to proceed; but speech is necessarily retarded to a greater degree, as lip-reading is very difficult. It is unwise to suspect mental deficiency until sincere efforts at adequate education have proved a failure. The Todema method of deaf-blind education would seem to have very little applicability in the cases in which usable vision or hearing, however poor, is present, and in which success can be achieved with methods of communication in general use—namely, speech, writing and drawing. The numerical equality of strabismus and congenital cataract as a complication in this group is notable. Another case of congenital glaucoma in a pre-school child with defective hearing can be grouped with those enumerated.

The numbers of children surviving with associated heart, eye and ear defects are small. The patients with cardiac defects are among the slowest learners, and their sluggish circulation can perhaps be called to account in this respect. They are confined to the group needing specialized school placement.

From the viewpoint of prognosis, the child with complicated and uncomplicated severely defective hearing demands the best his parents by their application and his teachers by their special skill can give. His chances of emerging as a socialized and educated individual are then good.

Summary.

No medical classification of bilateral deafness is available. Of 228 school children born since 1938 who have hearing sufficiently defective to require special schooling facilities, the main ætiological groups were associated with maternal rubella and genetic factors. Mental ability varied as in the general population. Early diagnosis with immediate appropriate training, which is now offered, makes a most obvious contrast with the 1941 group, whom war conditions handicapped.

Of visual defects, strabismus, cataract and glaucoma are prominent. Children with cardiac defects are slow learners.

Acknowledgements.

I wish to express my thanks to the Director of the School Medical Service, New South Wales, for permission to use this material, and to Dr. A. W. Flook for his help with the records.

DIABETES INSIPIDUS.

By W. LISTER REID,
Honorary Neurosurgeon, Royal Prince Alfred Hospital, Sydney.

DIABETES INSIPIDUS is a mixed term in that it has both Greek and Latin derivations. Diabetes has its origin from the Greek word διαβήτης, which comes from διαβαίνειν, to pass through. "Insipidus" is derived from the Latin word *insipidus* (*in*, not, and *sapidus*, savoury, from *sapio*, I taste). Thus "insipidus" means insipid or tasteless. On the other hand, "mellitus" has its origin from the Greek word μελι and the Latin word *mel*, meaning honey. In each of these conditions there is an excessive output of fluid or polyuria. In *diabetes insipidus* the fluid is essentially tasteless and unsweetened, whereas in *diabetes mellitus* the urine is honeyed or sweetened owing to the excess sugar content.

It is a curious point in medicine that one may practise for long periods without seeing certain conditions, and then a whole series may be presented within a comparatively short time. I had not seen a patient with *diabetes insipidus* for many years, yet within the past two years five patients have been referred to me. I examined two of these patients purely in consultation, and the only information that I have is that the condition had improved by the time the patients had left hospital some three to four weeks after severe head injuries. The third case was mild, and the symptoms were mentioned to me quite casually. This patient has just been put under treatment, so I cannot offer any information at the moment. The remaining two patients I have followed throughout their illness, and these cases will be described later in greater detail.

Diabetes insipidus is really a clinical syndrome rather than an actual disease. It is characterized primarily by an excessive passage of urine, or polyuria. Excessive thirst, or polydipsia, is the prime factor as far as the patient is concerned, but it is really of secondary importance, and purely an effort on the part of the body to replace the fluid lost. If fluids are forced or if the urinary output is reduced, the excessive thirst subsides.

This rare condition is due to a reduction in the secretion of the posterior lobe of the pituitary gland, and this may be brought about by many conditions that may interfere with the production of the lobe's secretion. Occasionally it is found in infants owing to a congenital deficiency, and one familial example has been published. Any inflammatory condition in the region of the pituitary fossa may interfere with the posterior lobe secretion, and such diseases as disseminated sclerosis or encephalitis may cause it when there are lesions in the hypothalamus. The commonest cause is probably head injury, and such head injury is usually very severe and undoubtedly acts by damaging the hypothalamus or the pituitary stalk. The onset of symptoms may occur from a few weeks to a few months after the accident. The severity of the symptoms varies in different cases, as also does the duration. The syndrome may be purely transitory or it may last for months or even years, and it may be permanent. In the majority of cases, however, the condition eventually subsides to normal.

Experimental work has shown that the posterior lobe of the pituitary gland, the pituitary stalk and the supraoptic and paraventricular nuclei act as a unit in the production of an antidiuretic hormone. The anterior lobe, on the other hand, together with its various connexions throughout the brain, produces a diuretic hormone. The precise action of this antidiuretic hormone is not fully understood, but it is generally agreed that the posterior lobe receives its nerve supply from the supraoptic and paraventricular nuclei in the hypothalamus, and that motor impulses are carried from these nuclei through the pituitary stalk. The diuretic and antidiuretic hormones are antagonistic to each other, and in this way, subject

to various outside influences, they control the fluid output and intake to within normal average limits.

The loss of one or other hormone results in the uncompensated action of the other. Thus, when the supraopticohypothalamic unit is damaged, the secretion of the antidiuretic hormone is reduced and the diuretic action of the anterior lobe holds sway. The only method of controlling this decompensation is to administer the deficient hormone in the form of posterior lobe extract, or "Pitressin". I have found that "Pitressin Tannate in Oil", given in doses of one cubic centimetre intramuscularly, is very satisfactory, as it greatly reduces the number of injections and yet controls the symptoms. An injection is given and the patient is told to report for the next injection when he begins to feel excessively thirsty again. The period of control varies in different individuals. In the majority of cases the condition is controlled within a few days, but control may take many months or even years, and the condition may be permanent in some cases.

A relatively small amount of experimental work has been carried out on this condition, but from time to time reports have appeared in the literature. Ingram *et alii* (1936) stated that damage to the hypothalamus or posterior lobe of the pituitary alone would not cause *diabetes insipidus*. They produced hypothalamic lesions in eight monkeys, and two of these developed *diabetes insipidus*. In these two there was found destruction of the fibres running through the pituitary stalk from the supraoptic nuclei to the pituitary lobe. In the remaining six animals, in which water metabolism was not disturbed, these exact lesions were not present. Gersh and Brookes (1941) made various lesions in the hypothalamic region in rats. In all the animals that developed *diabetes insipidus* the physiological disturbance was correlated with the degree of damage to the supraopticohypophyseal system. Bellows and Van Wagenen (1938) found, by causing appropriate hypothalamic lesions, that transient *diabetes insipidus* followed trauma to almost any part of the hypothalamus or the pituitary stalk, and I think that this temporary condition would probably be due to œdema of the surrounding tissues. Permanent *diabetes insipidus* followed lesions which destroyed the supraoptic nuclei or which interrupted the fibres from the supraoptic nuclei to the posterior lobe. Baker and Craft (1940) reported the case of a patient with pituitary infantilism, aged eighteen years, who had severe *diabetes insipidus*. Autopsy examination revealed bilateral localized lesions in the hypothalamus limited almost entirely to the supraoptic nuclei.

The effect of various salts in cases of *diabetes insipidus* has been studied by Swann and Penner (1939). They removed the posterior lobe together with the *pars nervosa* and *pars intermedia* in rats. They found that sodium chloride, Ringer's solution and sodium bicarbonate aggravated the condition and prevented spontaneous recovery, and that posterior lobe extract prevented this saline diuresis. Sodium sulphate, potassium chloride and calcium chloride excited no diuretic effects.

With regard to congenital and hereditary *diabetes insipidus*, an example has been published by Blotner (1942). The patient's symptoms were noticed when he started to walk and, later in life, he was consuming as much as three to four gallons of water per day. His mother and maternal grandmother had both suffered from the same complaint from early childhood.

In the infectious and inflammatory groups, McGavack *et alii* (1940) reported a case of *diabetes insipidus* associated with encephalitis. Autopsy revealed bilateral degeneration of the supraoptic nuclei and of the posterior lobe of the pituitary gland. Yaskin *et alii* (1942) described a case in which the syndrome followed acute pansinusitis with inflammatory reaction in the region of the pituitary fossa.

Tumours of various types may injure one or other part of the system and produce this syndrome. Melton and McNamara (1946) described a case associated with Hodgkin's disease. Autopsy and microscopic studies showed involvement of the pituitary gland. They also mentioned that three other such cases had been published in the literature. Gilbert Horrax (1947) reported five cases associated with pinealomata. In two of these, autopsy and histological studies were carried out and revealed tumour cells invading the supraopticohypophyseal tracts. Bernstein *et alii* (1938) published a case in which the hypothalamic region was partially destroyed by metastatic deposits from a lung carcinoma.

Trauma is probably the most common cause of *diabetes insipidus*, and I wonder whether the alleged rarity of this condition is not more apparent than real. One patient with very severe symptoms, whom I followed throughout his illness, merely told me about it quite casually some eight weeks after his accident. The daily intake and output vary considerably from time to time, and it seems to me that in mild cases the patient may not regard the increase as anything unusual, or he may attribute it to some known factor such as changes in the weather. I feel that it is quite possible that many of these cases have been missed. Porter and Miller (1948) reported 18 cases in which the condition followed head injury. In their series the direction of the blow was usually in the long axis of the skull—that is, either antero-posterior or vice versa. The syndrome lasted for varying periods from one month upwards. One patient was followed for eight years and there was no improvement, and undoubtedly this must be regarded as a permanent disability. All Porter and Miller's patients responded favourably to "Pitressin" by injection or by snuff.

Other casual reports have been published, such as Dann's (1951) case, in which *diabetes insipidus* was associated with metabolic craniopathy and was controlled with "Pitressin". It is interesting to note that during a pregnancy the patient required only one injection every three to seven days. She aborted at three months, and after this she required an injection every day. Gray and Moffat (1940) reported a case in which there were coexistent *diabetes insipidus* and *diabetes mellitus*. The patient eventually died from acute appendicitis, and histological studies revealed typical lesions of the two conditions in the pituitary gland and the pancreas respectively. The authors concluded that this coexistence was purely coincidental. Finally, Homes and Gregerson (1948) studied five cases and showed that the basis of the excessive thirst was the same as that involved in dehydration. That is, it was consistent with the "dry mouth" theory of thirst.

The supraopticohypophyseal system is a unit comprised of afferent fibres conducting outside influences, the supraoptic nuclei in the hypothalamus, the efferent fibres passing through the pituitary stalk and the posterior lobe of the pituitary gland. In order to simplify this, let us regard the supraoptic nuclei as a human dynamo capable of producing electrical impulses. These impulses are governed or controlled by outside influences such as temperature, humidity, activity, emotion or excess fluid intake. The dynamo sends its impulses through insulated fibres which pass through the pituitary stalk to the posterior lobe of the gland. These impulses stimulate the gland to produce an antidiuretic hormone which is then delivered into the blood-stream. It antagonizes or modifies the action of the diuretic hormone produced by the anterior lobe, and so governs the fluid output according to existing conditions in order to maintain a normal body fluid balance. For example, on a hot, humid day, when a lot of fluid is lost in the sweat, more antidiuretic hormone is secreted and so the urinary excretion of fluid is reduced. Conversely, on a cold day little fluid is lost in the sweat, so more fluid is secreted by the kidneys. This basis can be applied to the innumerable factors that may influence fluid balance.

One of the patients whom I have followed was a woman, aged thirty-five years, who was referred to me because she was complaining that her hands and feet were gradually becoming larger. On examination of the patient, the only abnormality found was that her features were somewhat coarse and her hands and feet were larger and coarser than was normal for that type of woman. She told me that she had had to buy larger gloves and shoes. At sight the condition was obviously an early example of acromegaly. X-ray examination of the skull revealed slight ballooning of the

sella turcica, so a tentative diagnosis of chromophile adenoma of the pituitary gland was made. A right frontal craniotomy was performed, and the contents of the pituitary fossa were seen to be bulging slightly. A small piece of the contents was taken for biopsy, and subsequent histological studies confirmed the diagnosis. The end of the sucker was then inserted into the pituitary fossa. There was a "plop" and a "slurp", and the contents of the pituitary fossa rapidly vanished down the sucker. There was nothing left to do but to close up. The operation took less than an hour and the patient made an uninterrupted recovery.

About a week after operation she began to complain of excessive thirst, so her fluid output and intake were measured and found to be excessive. She was given an intramuscular injection of "Pitressin Tannate in Oil" and her symptoms disappeared. She was kept in hospital for two weeks longer than usual in order to stabilize her on the "Pitressin". Eventually she required an injection of one cubic centimetre approximately every forty-eight hours. This period gradually lengthened until the fluid balance reverted to normal in about four months after operation and the injections were discontinued. I last examined her a few months ago, and she appeared very well and without any symptoms of *diabetes insipidus*. The amazing thing, at least to me, was that her features had softened and her hands and feet had become reduced in size. She informed me that she had had to buy smaller gloves and shoes.

In the second case that I followed, the condition resulted from a severe head injury.

This man, aged thirty-eight years, was admitted to hospital on the eve of my annual vacation, so that I was not asked to examine him until about a month later. He had received a severe head injury and had been totally unconscious for six or seven days, and had then gradually recovered. When I examined him he appeared very well and was up and walking about. On examining his X-ray films I saw an extensive and deeply depressed fracture in the right frontal, parietal and temporal regions, extending downwards towards the base. Obviously this had to be elevated, as it overlay the motor cortex and would be likely to cause future epilepsy. I elevated the larger pieces of bone and removed the smaller fragments, and he made an uneventful recovery. In casual conversation as he left hospital, some two months after his accident, he mentioned to me that he was drinking very large quantities of fluid. On further questioning he informed me that he was drinking about two dozen siphons of soda water per day; this being the only liquid that he could drink comfortably in such large quantities. On the basis that an ordinary siphon contains 30 ounces, this amounts to four and a half gallons of fluid per day. It was not so much the excessive drinking that worried him as the frequent interruption to his sleep to get out of bed to pass urine. I suggested to him that it might be a good idea if he kept a bottle beside his bed to avoid having to get up. He informed me, rather scathingly, that he already kept a bucket there.

He was given one cubic centimetre of "Pitressin Tannate in Oil" intramuscularly and the excessive thirst and urinary output were relieved. He was eventually stabilized on one injection every three to four days. About eighteen months later he stopped his injections as he was becoming drowsy during the day and thought that this may have been due to the injections. He was advised to continue with his injections. It is now two years since his accident and he has greatly improved, but still needs some boosting with "Pitressin". When he left off his injections, his thirst was reduced to the need to consume about six siphons of soda water per day, whereas previously it had been 24. While he is having injections of "Pitressin" his water balance is normal.

So we see that damage to the posterior lobe of the pituitary gland, the pituitary stalk or the hypothalamic nuclei, by injury, by disease or by some congenital defect, can cause a diminution in the production of the antidiuretic hormone and result in an excessive output of fluid, compensated for by an excessive intake. By supplementing the posterior lobe extract the water balance can be brought back to normal. If the damage is too great, insufficient antidiuretic hormone is produced by the gland, so that posterior lobe extract must be given indefinitely to make up for the deficit in order to maintain a normal fluid balance.

References.

BAKER, A. B., and CRAFT, C. B. (1940), "Bilateral Localised Lesions in the Hypothalamus with Complete Destruction of the Neurohypophysis in a Pituitary Dwarf with Severe Permanent Diabetes Insipidus", *Endocrinology*, 28: 801.

BELLOWS, R. T., and VAN WAGENEN, W. P. (1938), "The Relationship of Polydipsia and Polyuria in Diabetes Insipidus", *J. Nerv. & Ment. Dis.*, 88: 417.

BERNSTEIN, M., MOORE, M. T., and FISHBACH, D. B. (1938), "Diabetes Insipidus as a Sign of Metastatic Involvement of the Supraopticohypophyseal System", *Arch. Int. Med.*, 62: 604.

BLOTNER, H. (1942), "The Inheritance of Diabetes Insipidus", *Am. J. M. Sc.*, 204: 261.

DANN, S. (1951), "Metabolic Craniopathy. A Review of the Literature with Report of a Case with Diabetes Insipidus", *Ann. Int. Med.*, 34: 163.

GERSH, I., and BROOKES, C. McC. (1941), "Correlation of Physiological and Cytological Changes in the Neurohypophysis of Rats with Experimental Diabetes Insipidus", *Endocrinology*, 28: 6.

GRAY, P. A., and MOFFATT, W. M. (1940), "Coexistence of Diabetes Mellitus and Diabetes Insipidus", *Endocrinology*, 27: 430.

HOLMES, J. H., and GREGERSEN, M. I. (1948), "Origin of Thirst in Diabetes Insipidus", *Am. J. Med.*, 4: 503.

HORRAX, G. (1947), "Role of Pinealomas in the Causation of Diabetes Insipidus", *Ann. Surg.*, 126: 725.

INGRAM, W. R., FISHER, C., and RANSON, S. W. (1936), "Experimental Diabetes Insipidus in the Monkey", *Arch. Int. Med.*, 57: 1067.

McGAVACK, T. H., BENJAMIN, J. W., and LIEBOWITZ, S. (1940), "Diabetes Insipidus", *Arch. Neurol. & Psychiat.*, 44: 867.

MELTON, E. I., and McNAMARA, W. L. (1946), "Hodgkin's Disease Involving the Pituitary Gland with Diabetes Insipidus", *Ann. Int. Med.*, 25: 525.

PORTER, R. J., and MILLER, R. A. (1948), "Diabetes Insipidus following Closed Head Injury", *J. Neurol., Neurosurg. & Psychiat.*, 11: 258.

SWANN, H. G., and PENNER, B. J. (1939), "The Effect of Salts on the Diabetes Insipidus following Posthypophysectomy in the Rat", *Endocrinology*, 24: 253.

YASKIN, J. C., LEWEY, F. H., and SCHWARZ, G. (1942), "Diabetes Insipidus and Other Unusual Complications of Acute Purulent Sinusitis", *Arch. Neurol. & Psychiat.*, 48: 119.

Reports of Cases.

A CASE OF ATTEMPTED SUICIDE WITH ISO-NICOTINIC ACID HYDRAZIDE.

By G. DIXON AND J. M. WOODFORDE,

Royal Hobart Hospital, Hobart.

THIS case is recorded because we find it unique that a patient attempted suicide with a large dose of iso-nicotinic acid hydrazide (*I.N.H.*) while undergoing treatment for pulmonary tuberculosis.

Clinical Record.

Mr. X.Y., aged twenty-five years, a truck driver, had been diagnosed as suffering from active pulmonary tuberculosis in July, 1954. He was treated at the Tasmanian Chest Hospital until January, 1955, and was discharged home, with his disease quiescent, taking para-amino salicylic acid (12 grammes daily) and iso-nicotinic acid hydrazide (300 milligrammes daily). Three months later, after an afternoon's beer drinking, he attempted suicide after a domestic argument by swallowing approximately 100 INH tablets, each of 100 milligrammes. He began to vomit two hours after the ingestion of the tablets. He was admitted to hospital thirty minutes later, and within a further thirty minutes had had two *grand mal* convulsive seizures.

On examination of the patient, the relevant findings were as follows. He was stuporose, his pulse rate was 126 per minute, his blood pressure was 130 millimetres of mercury, systolic, and 80 millimetres, diastolic, the deep reflexes were greatly exaggerated, and the plantar responses were flexor in type. The pupils were of normal size and

reacted to light; no neck stiffness was present. Clinical examination of the chest revealed no abnormality. Gastric lavage with sodium bicarbonate solution was carried out and he was then observed.

He was subsequently mentally retarded, drowsy and relatively hypotensive, the blood pressure falling to 110 millimetres of mercury, systolic, and 60 millimetres, diastolic, about twelve hours after his admission to hospital. During this period, which lasted for about thirty-six hours, he had no recurrence of the *grand mal* attacks, and the reflexes were normal. Except for amnesia of the first two days in hospital, he returned to his usual state of health. Interrogation revealed no past history or family history of epilepsy. Investigations carried out were examination of the cerebro-spinal fluid, electroencephalography, X-ray examination of the skull, a Kline test and a full blood examination, and these all gave results within normal limits. An X-ray examination of the chest revealed infiltration in the left upper zone consistent with pulmonary tuberculosis. The sputum examination failed to reveal acid-fast bacilli. No INH was recovered from the stomach.

Discussion.

It is reported (Selikoff, 1952) that toxic effects from INH can occur with the daily oral dose of four milligrammes per kilogram. These mild toxic symptoms consist of twitching of the extremities and increased deep reflexes, constipation, vertigo, dryness of the skin, and difficulty in micturition.

Schalek (1954) states that "Isoniazid" resembles picrotoxin, both in causing convulsions in unanæsthetized dogs and in causing bursts of high-amplitude spikes in the electroencephalogram of anæsthetized dogs. "Isoniazid" precipitates convulsions in epileptics (Fotterhoff, 1952), and this is said to be due to sensitization of the nervous system to visual and auditory stimuli (Reilly, 1953). The drug is rapidly absorbed, and maximum concentration is attained in the plasma one to six hours after the administration of normal doses (Elmendorf, 1952), and as two and a half hours had elapsed after ingestion, it seems probable that the *grand mal* attacks were due to the large dose of INH ingested. The fact that none was recovered from the stomach by lavage could be accounted for by the vomiting preceding this and the rapid absorption of the drug. Hypotension was only a minor manifestation in this case.

Summary.

Attempted suicide by the ingestion of a massive dose of isonicotinic acid hydrazide is reported. Two *grand mal* attacks in a patient lacking a history of epilepsy, either personal or familial, and with negative findings on investigation, were the main features of the case.

Acknowledgements.

We should like to thank the General Superintendent of the Royal Hobart Hospital, Dr. J. M. M. Drew, and Dr. A. J. M. Dobson for permission to publish the case, and Dr. K. Millingen for his advice.

References.

ELMENDORF, D. F., JUNIOR, CAWTHON, W. U., MUSCHENHEIM, C., and MCDERMOTT, W. (1952), "The Absorption, Distribution, Excretion and Short Term Toxicity of Isonicotinic Acid Hydrazide (Nydrazid) in Man", *Am. Rev. Tuberc.*, 5: 429.

FOTTERHOFF, K. I., *et alii* (1952), "Hazards of Isoniazid Therapy in Epileptics", *Am. Rev. Tuberc.*, 66: 501.

REILLY, R. H., KILLAM, K. F., JENNEY, E. H., MARSHALL, W. H., TAUSIG, T., APTER, N. S., and PFEIFFER, C. C. (1953), "Convulsant Effects of Isoniazid", *J.A.M.A.*, 152: 1317.

SCHALECK, W., *et alii* (1954), "Effects of Isoniazid and Iproniazid on the Central Nervous System of the Dog", *Am. Rev. Tuberc.*, 69: 261.

SELIKOFF, I. W., ROBITZEK, E. H., and ORNSTEIN, G. G. (1952), "Toxicity of Hydrazine Derivatives of Iso-nicotinic Acid in the Chemo-therapy of Human Tuberculosis", *Quart. Bull. Sea View Hosp.*, 13: 17.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Topley and Wilson's Principles of Bacteriology and Immunity", by G. S. Wilson, M.D., F.R.C.P., D.P.H., and A. A. Miles, C.B.E., M.A., M.D., F.R.C.P.; Fourth Edition; 1955. London: Edward Arnold (Publishers), Limited. Volumes I and II. 9½" × 6½", pp. 2427, with 302 figures. Price: £8.

First published in 1929, it was originally intended for the general student of biology and medicine. Its character has gradually changed—it is now of most use to the post-graduate student of human and veterinary medicine, to the teacher of bacteriology and immunity and to the research worker.

"The Body Fluids: Basic Physiology and Practical Therapeutics", by J. Russell Elkington, M.D., and T. S. Danowski, M.D.; 1955. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6", pp. 646, with many illustrations. Price: £5 10s.

The subtitle describes the scope of the book which is intended for clinicians.

"Tropical Medicine for Nurses", by A. R. D. Adams and B. G. Maegraith; 1955. Oxford: Blackwell Scientific Publications. 9" × 6", pp. 324, with 34 illustrations. Price: 30s.

The authors have planned this book to meet the needs of registered hospital nurses working in the tropics; they state that no book suited to this purpose exists.

"The Medical Clinics of North America"; 1955. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. Boston Number. 9" × 6", pp. 336, with many illustrations. Price: £8 2s. 6d. *per annum* with cloth binding and £6 15s. *per annum* with paper binding.

In this Boston Number there are 24 authors. The greater portion is occupied by a symposium on specific methods of treatment; there is one "additional article" on office proctology.

"My Duodenal Ulcer and I", by Stuart Morton; 1955. London: Christopher Johnson. 8½" × 5½", pp. 214. Price: 16s.

The personal experiences of a doctor who had a duodenal ulcer and who became a ship's surgeon.

"Professional Negligence", by J. P. Eddy, Q.C., with a foreword by The Right Honourable Sir Alfred Denning; 1955. London: Stevens and Sons, Limited. 8" × 5", pp. 158. Price: 19s. 6d.

It is important for all professional people to know the legal definition of "professional negligence".

"Ladies in Emergency", by Alasdair Sinclair, M.D.; 1955. London: Christopher Johnson. 7½" × 5", pp. 186. Price: 10s. 6d.

Obstetrical stories intended for the general public.

"The Surgical Clinics of North America"; 1955. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. Mayo Clinic Number. 9" × 6", pp. 286, with 351 illustrations. Price: £8 2s. 6d. *per annum* in cloth binding and £6 15s. *per annum* in paper binding.

This Mayo Clinic Number consists of a symposium on cardiac and vascular surgery. Sixteen contributions deal with the surgical management of certain lesions of the heart and great vessels; ten deal with the surgical management of certain other vascular lesions. There are 27 contributors.

"Local Analgesia Head and Neck", by Sir Robert MacIntosh, D.M., F.R.C.S. (Edin.), F.F.A.R.C.S., M.D. (hon. causa), Buenos Aires and Aix-Marseilles, and Mary Ostiere, M.B., M.R.C.P.E., F.F.A.R.C.S.; 1955. Edinburgh and London: E. and S. Livingstone, Limited. 9" × 6", pp. 146, with 145 illustrations. Price: 27s. 6d.

Divided into two sections, dealing with (*a*) anatomy, (*b*) technique; the techniques described are those which have been found useful by the authors.

The Medical Journal of Australia

SATURDAY, JANUARY 7, 1956.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

OCCUPATIONAL DISEASE.

THE divorce of medicine from the supernatural was the outstanding service of Hippocrates and may be considered to be one of the greatest single achievements of the Greek intellect. His directions regarding medical ethics are still read and prescribed. But it is no detraction from his genius and ascendancy to admit candidly that Hippocrates was, in social prejudices, the child of his age; he regarded the manual worker as an inferior creature much as a Brahmin might look down on men of lower caste; his patients were members of the privileged class and his dietary recommendations could be followed only by men and women of wealth. Even Socrates with his fearless and independent mind held the view, according to Xenophon, that the mechanical arts carried a social stigma and that manual workers could not be good citizens, good patriots or good friends. It was not until the Renaissance that the health of the worker was given any consideration. Agricola (1494-1555) ends his great book *"De Re Metallica"*, published in the year after his death, with a description of the diseases and accidents prevalent amongst miners and with suggestions how they might be avoided. The adventurous and truculent Paracelsus (1493-1541) wrote the first monograph on miners' and smelters' occupational diseases and made a special study of the toxicity of various metals. The real father of occupational medicine was Bernardino Ramazzini (1633-1714), who spent most of his active life in the study of epidemics, never dreaming, we may well imagine, that his observations on the health of working men and women would bring him far greater fame. His truly epoch-making book, *"De Morbis Artificum Diatriba"*, was published in 1700 when he was sixty-seven years of age. He had not only a scientific interest in this branch of medical science, but had also a deep sympathy with the worker.

> Medicine like Jurisprudence should make a contribution to the well-being of workers and see to it that, so far as possible, they should exercise their callings without harm. So I for my part have done what I could and have not thought it unbecoming to make my way into the lowliest workshops and study the mysteries of the mechanic arts.

Another famous aphorism is:

> When a doctor visits a working-class home he should be content to sit on a three-legged stool, if there is not a gilded chair, and he should take time for his examination; and to the questions recommended by Hippocrates he should add one more: What is your occupation?

Cleanliness, change of underwear, protective clothing and variation in the type of work were all vigorously advocated. The next pioneer name in the history of occupational diseases is that of Charles Turner Thackrah (1795-1832), who published in 1831 a book entitled "The Effects of the Principal Arts, Trades and Professions, and of Civil States and Habits of Living, on Health and Longevity, with Suggestions for the Removal of many of the Agents which Produce Disease and Shorten the Duration of Life". Thackrah died of tuberculosis when thirty-seven years of age, but there can be no doubt that his book led directly to the factory and health legislation which mitigated some of the worst evils of the Industrial Revolution of which Britain was so proud.

What cannot fail to impress the student of the history of this subject is the modernity of so many of the investigations. For instance, in the case of skin diseases, though there had been incidental observations going back as far as Paracelsus, the really scientific study of occupational skin ailments and occupational cancer started after the first World War. In 1934 Prosser White in Britain led the way with an encyclopædic work "Occupational Affections of the Skin". In 1947 there appeared the equally scholarly but naturally more up-to-date "Occupational Diseases of the Skin" by the Americans Schwartz, Tulipan and Peck.

Many admirers of Conan Doyle's Sherlock Holmes imagine that Doyle's teacher, Dr. Joseph Bell, of Edinburgh, was the first to make diagnoses of the patient's occupation, habits, place of residence, family standing and the like by quick and accurate observation.

> "But, my dear Holmes, how on earth could you have known that the man was a violinist?"
>
> "You know my methods, Watson, surely you noticed the patch of acneiform dermatitis beneath the angle of the left mandible?"

Sherlock's anatomy is certainly curious. One might from this and other slips infer that either the teaching was poor in Edinburgh or that Doyle was an indifferent student—we may safely discard the former suggestion. Actually this quick sizing up was put into practice by many clinicians previously. It was well described by Oliver Wendell Holmes long before his fictional namesake appeared in literature, and in the nineteenth century the French doctors Corvisart, Dupuytren and Trousseau prided themselves on their rapid detection of a patient's trade or profession.

These reflections have been suggested by the publication of a fascinating book on occupational disease by Donald Hunter, of London, which is certain to become recognized as an authoritative text-book.[1] The author, who spent some time in Australia comparatively recently, and who by his lectures captured the interest of undergraduates and graduates alike, covers an immense field in a masterly manner. The book is not only unusually comprehensive and accurate, but is written in a lively vein with anecdotes and case histories. There are delightful digressions giving a "human touch", which will make the reading a pleasure. Much social history is included—as, for example, an account of the "climbing boys" with quotations from William Blake, Charles Lamb, Charles Dickens and Charles Kingsley. Even in the final chapter, which deals with accidents, the high standard of the earlier chapters is maintained. In this account of the book it may not be out of place to draw attention to one or two omissions. There is a long account with illustrative cases of cysticercosis, but no mention of hydatids. Obviously the author does not regard hydatid invasion as an occupational hazard. Scurvy is left out, though surely it was once on a time an occupational disease of sailors. It must still be kept in mind in the planning of rations for Alpine and other exploration. A second edition might include the effects of hormone inhalation in factories, particularly of œstrogens by pubertal boys. These are small matters and are mentioned in passing; they do not detract from the unqualified praise which this admirable book will elicit from the medical profession. We hope that it will be widely read, because this subject is becoming more and more important in all branches of medical practice.

Current Comment.

CUSHING'S DISEASE.

In 1932 Harvey Cushing, in a historic communication in the *Johns Hopkins Hospital Bulletin*, reported two cases of the disease which has come to bear his name and referred to ten other cases in the literature. The condition is highly characteristic and needs no description here, especially since its features are produced by excessive amounts of ACTH or cortisone given to normal subjects and so have become familiar as "side effects" of treatment with these substances. Cushing put forward the view that this condition was one of pituitary basophilism, the result of adenoma of the basophile cells of the anterior pituitary lobe. Later in the same year he published further reports of cases[2] which supported his view. He was aware that the characteristic clinical picture had been reported in association with an apparently normal pituitary gland, but was inclined to discount this last finding. He wrote:

> When one takes into consideration not only the presumed infrequency of adenomas of this type but their small size, whereby they easily escape detection, and couples this with the fact that chief attention has been paid to the condition of the adrenal glands in all the autopsies heretofore conducted, the fact that a basophil adenoma has been found in half of the patients who have succumbed to this peculiarly unmistakable malady must be something more than coincidence.

However, Cushing's judgement seems to have been premature. Subsequent experience has not supported his concept, and it must be accepted that at least some cases of Cushing's disease have a primary adrenal origin. Some physicians, according to Ralph G. Greenlee,[1] would like to designate those cases associated with a basophile adenoma of the pituitary gland as "Cushing's disease", and those associated with primary adrenal disease as "Cushing's syndrome". However, as Greenlee points out, this does not really help the classification of the condition. Others have gone further; for example, O. Cope and J. W. Raker[2] quote with approval the view of Rasmussen that the minute basophilic adenomata believed by Cushing to be responsible for the disease may have been incidental findings. Cope and Raker question Cushing's concept on the basis of experience at the Massachusetts General Hospital since 1935, during which time 46 patients with Cushing's disease have been cared for. Despite Cushing's experience and enthusiasm, pituitary irradiation has proved inadequate as therapy. Hormone therapy likewise has been disappointing, and surgery has emerged as the consistent practical form of therapy.

Cope and Raker state that the more they have seen of Cushing's disease, the more they have come to realize that it is a disease of the adrenal cortex in much the same manner as Graves's disease is a disease of the thyroid gland. They point out similarities between the two conditions: "both appear in the same kind of people, have a comparable theoretical relation to the anterior pituitary body and perhaps have the same sort of etiology". They have a similar sex and age distribution. Similar psychological and endocrine influences have been noted in association with the development of each, although their precise relevance to the conditions is not clear. The relationships of the two conditions to the anterior part of the pituitary gland are of considerable interest. Cope and Raker remind us that in recent years experimental and clinical evidence has accumulated indicating that overactivity of the thyrotropic stimulus of the anterior part of the pituitary gland is essential to the development of Graves's disease. Irradiation of the pituitary gland is sporadically successful in halting active hyperthyroidism. In similar fashion there is now much evidence that the adrenocorticotrophic action of the anterior part of the pituitary gland bears a similar relation to overactivity of the adrenal cortex. Here, too, irradiation of the pituitary gland sporadically arrests the manifestations of Cushing's disease. Injection of the adrenocorticotrophic hormone (ACTH) can reproduce in entirety the clinical picture of spontaneous Cushing's disease.

When we come to consider treatment the comparison arouses speculation. The attack on Graves's disease is directed against what Cope and Raker describe as the end organ of endocrine action, the thyroid gland. Remarkable success has been achieved, first with surgical removal and then with medical measures in the form of the thiouracil drugs and radioactive iodine. For Cushing's disease surgical treatment is as yet the only practical measure. Cope and Raker record that in their series a neoplasm was found to be the cause in 17 cases, and the only proper action to be taken was complete removal of the tumour, the uninvolved gland on the other side being left alone. In five cases the tumour was malignant, and all the patients concerned succumbed with metastatic disease. The other 12 patients had benign neoplasms: one died before operation, 11 survive, cured by resection. Bilateral hyperplasia (present in 27 cases) was treated by subtotal resection. In two cases the hyperplasia was associated with multiple nodules, a phase of the adrenal change believed comparable (according to Cope and Raker) with nodular goitre with hyperthyroidism. To achieve a consistent therapeutic result in the hyperplasias it has been found necessary to remove at least 90% of the adrenocortical tissue. Of the 27 patients, two died before operation; of four who had limited resection, two have since died of active disease and two are living with residual disease; two others have died after surgical relief of the disease; 19 are living and cured.

[1] "The Diseases of Occupations", by Donald Hunter, M.D., F.R.C.P.; 1955. London: English Universities Press, Limited. 9" x 6", pp. 1062, with 438 illustrations. Price: £5 5s.

[2] *J.A.M.A.*, July 23, 1932.

[1] *M. Clin. North America*, July, 1955.

[2] *New England J. Med.*, July 28, 1955.

In broad terms, the results to be obtained from removal of a hyperfunctioning tumour of the adrenal cortex are summed up by James T. Priestley,[1] of the Mayo Clinic, as "generally good provided that no serious difficulty is encountered during the postoperative convalescence, provided that secondary manifestations of the syndrome, such as hypertension, have not been present too long, and provided that the tumor was not of a malignant nature and metastatic lesions do not occur subsequently". Good results in the presence of adrenal hyperplasia depend upon resection of "an amount of adrenal tissue which is adequate to effect a satisfactory remission of the disease but not so excessive as to result in a deficiency state". This is very much a matter of surgical judgement and skill.

CORTISONE, ACTH AND INFECTION.

"CORTISONE and ACTH have become, within a short span of time, perhaps the most universally popular and widely accepted therapeutic agents since the introduction of purgatives, and there seems to be no human disease in which they have not, at one time or another, been given a try." So writes L. Thomas[2] in a review on the action of cortisone and ACTH, particularly in relation to infection. He goes on to state that cortisone and ACTH cause enhancement of infection by a great variety of different infectious agents, and they appear to do so by lowering the host's resistance. This enhancement of infection has been seen with streptococci, pneumococci, staphylococci, brucella, typhoid bacilli, spirochætes, corynebacteria, malaria parasites, trypanosomes, various fungi and several viruses. No satisfactory explanation has yet been given of the phenomenon. As an example one may take the infection of rabbits by streptococci. Rabbits are normally very resistant to infection by streptococci; and when large doses of virulent organisms are injected under the skin, the lesion usually remains localized with well-marked erythema and often necrosis. If the animals are pretreated with cortisone for three days and streptococci are then injected, there is no local reaction, and the animals appear quite normal for several days. Then they die suddenly, and the blood and the organs contain countless numbers of streptococci. The entire animal has been converted by the cortisone to an inert culture medium for the streptoccocci. This is an extreme case of the effect of cortisone, but similar results occur with other organisms, particularly the bacteriæmia. If one considers only the skin, cortisone is a miracle drug in clearing up or preventing a streptococcal infection; and if the animal is treated within a day or two with penicillin in large doses, the septicæmia is readily controlled.

Cortisone has also a remarkable action on the response to the endotoxins of Gram-negative bacteria. These endotoxins appear to exist in all Gram-negative bacteria, and they have been called "bacterial pyrogens", "shock-producing toxins" and "Schwartzman-active toxins". Cortisone acts in both a beneficial and a harmful way in the response of animals to these endotoxins, depending, in the case of rabbits, on the age of the animals. Adult rabbits are very susceptible to the endotoxins. A single dose of five to ten milligrammes of cortisone given prior to the injection of endotoxin completely eliminates the toxic effect. This effect is seen also in human patients with a shock-like state associated with overwhelming infections with Gram-negative bacteria. With young animals a dose of endotoxin sufficient to make them ill but not to kill them, when given to animals previously given cortisone for three days, produced very acute symptoms and death with gross bilateral cortical necrosis in the kidneys. Necrosis may also occur in the liver, spleen and lungs. Similar effects are produced in young rabbits with large doses of endotoxin without cortisone.

These are only some of the effects of cortisone in animals. Similar results can be obtained in man, and in considering the use of cortisone or ACTH one has to remember that these substances are capable of causing at least two effects, one good, the other bad. In the presence of bacterial infection, uncontrolled or uncontrollable by antibiotics, there is no circumstance in which the use of cortisone or ACTH can reasonably be justified at the present time, with the exception of genuine adrenal insufficiency. If the infection can be completely checked, then the use of the hormones may be considered. Where endotoxins of Gram-negative bacteria may be important factors in a disease condition, one must consider the possibility of producing renal necrosis by giving cortisone. The use of cortisone may be justified if it is given for only a short period of time, and then only to combat shock. A prolonged course of therapy would seem to be highly dangerous. Cortisone given at the time when treatment with chloramphenicol is started may be very effective in typhoid fever in preventing vasomotor collapse and shock due probably to release of endotoxin from the typhoid bacilli, but the dosage should be continued for two or three days only. Cortisone should not be used for all patients or to give a greater degree of comfort to those patients who may be expected to recover with antibiotics alone. The same can be said about meningococcæmia in infants. In certain infectious diseases cortisone can do nothing but harm. Tuberculosis is an outstanding example. Subacute bacterial endocarditis is another example. Staphylococcal infections resistant to antibiotics are made worse by cortisone. Cortisone, it is to be noted, not only permits infection to occur; it masks the evidence of infection. Much has been made in published papers of the successes from cortisone treatment, little of the bad results; yet these can readily be found if looked for, especially if, as should be the case where infection might be present, frequent blood cultures are prepared. Thomas writes: ". . . the clinical use of ACTH and cortisone should be reserved for occasions of peril, and here I would recognize only two kinds of peril: the pain of death and the pain of prolonged or permanent incapacitation. They should not be used for the purpose of providing comfort in what would otherwise be uncomfortable but self-limited illnesses. If, in a given situation it becomes agreed that their only effect is temporary symptomatic relief, they should then be set aside. They should not be regarded as an improved form of aspirin."

[1] *S. Clin. North America*, August, 1952.
[2] *Bull. New York Acad. Med.*, July, 1955.

HISTOGENESIS OF HEPATIC CIRRHOSIS.

AN attempt has been made by Hans Popper and Hans Elias[1] to demonstrate the pathways of the architectural changes of the liver in various types of cirrhosis and to explain the mechanical processes associated with them. One pathway results from the sequelæ of massive and submassive necrosis of the lobular parenchyma with subsequent collapse, leading to post-collapse cirrhosis. The vessels and ducts are approximated, and the angles of branching become acute, without disturbance of the basic arrangement of interdigitation of the portal and hepatic canals. In the surrounding liver tissue a pattern of traction is created by the collapse of the necrotic area, and fissures arise in which connective tissue septa develop. Lobular fragments in submassive necrosis become nodules which either represent part of a lobule or may be composed of multiple lobules.

The second pathway leads to primary septal cirrhosis through the formation of septa by aggregation of collagenous membranes. The septa have formed either in the lobular parenchyma as reinforcement of the argentaffin fibre network or in stress fissures separating hepatic territories of uneven expansion caused by regeneration, necrosis and irregular fatty metamorphosis. Septa may originate from either portal or central canals or develop within the parenchyma. They may cut out nodules of various sizes from the lobule, especially if they connect central and portal canals. In the nodules, rearrangement

[1] *Am. J. Path.*, May-June, 1955.

of the liver cell plates, formation of a new efferent vein and intense regeneration develop. The intense regeneration is reflected in plates several cells thick and in the formation of ductules. In fatty metamorphosis septation may be the result of several processes: (*a*) collapse of fatty cysts, (*b*) periportal and intralobular necrosis and inflammation, and (*c*) membrane formation in stress fissures caused by uneven expansion of hepatic territories from irregular fat deposition, regeneration and necrosis. Since processes (*b*) and (*c*) predominate in the human liver, cirrhosis from fatty metamorphosis does not result from fat deposition directly, but from increased susceptibility of the fatty liver to necrotizing or inflammatory processes and subsequent regeneration.

In pericholangiolitis, fibrous connective tissue proliferation in the adventitia of intralobular ductules creates irregularly curved cylindriform trabeculæ. Even if this connective tissue formation becomes extensive (pericholangiolitic pseudocirrhosis), the lobule is not subdivided until late, when septa form because of accompanying processes, and cirrhosis develops.

Popper and Elias state that all three pathways—collapse, septation and formation of cylindriform trabeculæ—may terminate in a common pathway with extensive development of septa and nodules, for which the term Laennec's cirrhosis is proposed. They point out that one feature common to any cirrhosis is nodule formation (*a*) from lobular fragments after collapse, (*b*) from subdivisions of the lobule by septa or (*c*) from regeneration of trapped cells within the septa. The regenerating nodules compress the hepatic veins, which accounts for portal hypertension. A second feature is porto-hepatic venous anastomosis by inclusion of sinusoids in developing septa. These shunt blood past the parenchyma and thus produce unfavourable circulatory conditions for it. Central necrosis ensues, setting in motion a cycle of degeneration and regeneration, characteristic of cirrhosis and independent of the persistence of its original cause.

ANNUAL REPORT OF THE BRITISH EMPIRE CANCER CAMPAIGN.

THE thirty-second annual report of the British Empire Cancer Campaign, covering the year 1954, represents a greater volume of research than had hitherto been carried out in any one year since the founding of the campaign, and the subjects embraced extend over a wider field. It is interesting to note the ever-increasing recourse to the precise methods offered by physics; hence young researchers in expanding numbers are being trained in ultra-violet, phase contrast, interference and electron microscopy; ultrasonic techniques are being studied and applied, and of course radioactive isotopes are disclosing more and more facts about living tissues, normal and pathological. This is all to the good. Out of the many conclusions presented a few may be singled out for special comment. Some chemical agents are initiators, though not in themselves carcinogenic; others are promoters rather than initiators. Different animals show different reactions to carcinogenic chemical material; thus some distillation fractions of mineral oil produce tumours rapidly in rabbits but not at all in mice. Death rates from breast cancer are the same in single and infertile married women, but lower in the married fertile woman; delayed marriage in general is associated with a higher incidence. The view that tobacco-smoking is a cause of lung cancer has not received the support which many have expected. The most arresting contribution is that made by Professor H. N. Green, of Leeds, who directs a team including researchers from Sheffield as well as from his own city. Professor Green's contention is that all modes of tumour induction are essentially immunological in nature. The large and complex mass of evidence cannot be easily summarized, but the theory is that all neoplastic cells lack one or more substances, presumably protein, which confer tissue or individual identity or both on the cells; these become non-antigenic, and so do not attract and combine with the immune bodies which regulate cell fate and disposal. The report in all its branches deserves careful study, and much information and inspiration will be gained by workers in other medical fields than that of cancer.

CHEMOTHERAPY AND SURVIVAL IN ACUTE LEUCHÆMIA.

THE cause and treatment of uninhibited cellular proliferation within the human body remain obscure despite extensive research. Some of the more localized cancerous growths are therapeutically destructible. But others, such as the blood leuchæmias, continue to take their toll of young human life virtually unchecked. A variety of therapeutic agents has been evolved in the attempted treatment of these unfortunate patients. It may be as well to sit back from time to time and make some estimate of the usefulness of these agents. In a recent survey, A. Haut, S. J. Altman, G. E. Cartwright and M. M. Wintrobe[1] have collected a large series of cases of leuchæmia from the published literature. Together with their own series of cases from March, 1947, to March, 1954, they have made a statistical comparison of effectiveness of treatment in acute leuchæmoid states. They recognized that an attempt to correlate success with remissions was impracticable and have therefore used longevity after commencement of the disease as a guide to the success of therapy. From their own series and from the published papers of others they used only cases in which the records were complete. The date of onset of the disease was that of the first symptom or sign noticed by the patient. Treatment was prescribed as considered most appropriate in each individual patient according to age, general condition and the type of leuchæmia. Diagnosis rested upon the microscopic examination of blood or bone marrow for typical "blast" cells. In their own series they used the records of 103 patients, 11 of whom had been untreated. From the published papers of other workers they used the records of 782 patients, 143 of whom were untreated. For the purpose of the statistical comparison, case records were used only where antibiotics would have been available for use in the final complications of the disease. Blood transfusion and antibiotic administration were not regarded as forms of therapy for the acute leuchæmias. As only the chemotherapeutic agents were compared individually in this work, the writers classed such treatments as X-ray therapy, nitrogen mustard, urethane and "Myleran" or radioactive phosphorus into one "substandard" therapy group. An individual assay of folic acid antagonists, ACTH, cortisone and 6-mercaptopurine was the specific purpose of this investigation.

In their own series of cases results showed that half of the untreated patients were alive after two months and 10% after eight months, compared with the literature records of four and a half and eleven months respectively. In their own series of patients treated by the more standard therapy the average survival rate was half of the patients at three months and 10% after eleven months, compared with literature records of four and nine and a half months respectively.

When folic acid antagonists were used, survival rate was half at four and a half months and 10% at eight months, compared with the literature records of four and nine and a half months respectively. In their own series survival rates with cortisone therapy were half at five months and 10% at eleven and a half months. If two of the chemotherapeutic agents were administered, survival rate was half at six months and 10% at thirteen months. In patients who achieved a remission of signs during treatment, survival rate was half at eight and 10% at fourteen months. Further similar comparisons were made of the combined or serial use of the chemotherapeutic agents.

[1] *Blood*, September, 1955.

In discussing difficulties in making such an assay of therapeutic effectiveness, the authors point out that the exact start of the disease is very hard to determine. Differences between their own smaller series and that compiled from the literature are probably due to approximations in estimating the time of onset of the disease and are partly due to pure chance. Also in their own untreated cases survival rate seems to be particularly poor, but this is probably due to the small number of such cases and a corresponding result was not found in the large literature series. The authors feel that from their findings there is no real evidence that chemotherapy is effective in the treatment of acute leuchæmia, but they consider that there may in fact be a lessening in the morbidity before the disease is fatal, that there may be some effect in the treatment of acute lymphoblastic leuchæmia in childhood, and finally that chemotherapy may be regarded as effective when a remission of signs and symptoms occurs during treatment. However, the authors do not provide a statistical comparison of the survival rates of untreated patients when a remission occurs.

This series covers a large number of recorded cases. However, most of these have been extracted from the literature, and the value of this work lies chiefly in the personal series conducted and treated by the authors themselves. Acute leuchæmia covers several specific blood dyscrasias, and, for an accurate assay of chemotherautic effectiveness, each of these diseases would have to be treated separately. The number of patients treated by the authors was too small for this important subdivision. It is also noted that the number of patients in the present series receiving chemotherapy was small, so that accurate statistical comparisons, especially an assessment of the effectiveness of 6-mercaptopurine, are hardly possible. Finally, if any claim for therapeutic effectiveness is forthcoming in a future series the amount and effect of supportive treatments such as blood transfusion and antibiotics would have to be controlled, and the effect of the specific therapy on the microscopic blood and marrow findings recorded.

SOME PRACTICAL SUGGESTIONS ON TETANUS PROPHYLAXIS.

TETANUS is a terrible disease which could be virtually abolished. The Utopian but nonetheless, as Edward S. Stafford[1] states, true prophylaxis of tetanus lies in the prevention of injuries. As this is beyond human reach, the practical concept is one of prevention of tetanus in those who are injured. Fortunately, tetanus is of rather infrequent occurrence — Stafford quotes a case rate of 1 per 200,000 of population per year in a United States metropolitan area over the past twenty-five years. While no data are available on the number of injuries, trivial and otherwise, incurred by 200,000 people in a year, it must be a very large figure. Stafford points out that in civilian life tetanus is usually a complication of a relatively minor injury, such as a puncture wound of the foot or the entry of a wood splinter into the tissues, or of an injury such as a blank cartridge blast or the explosion of a cap. Recent studies of clinical tetanus by Stafford, Turner and Goldman[2] and by Vinnard[3] seem to show that the prophylactic use of a single injection of 1500 units of tetanus antitoxin does not alter the mortality rate from tetanus. On the other hand, active immunization, as practised in the armed forces of Australia, the United States and other countries during and since World War II, provided almost perfect protection against tetanus. Stafford states that most individuals who have been actively immunized against tetanus retain a measurable level of tetanus antitoxin in their serum for as long as eleven years after the most recent booster injection. Furthermore, these individuals all respond actively and rapidly to a new booster injection of toxoid. He suggests the following as a plan for the prophylaxis of tetanus which will meet all situations: (i) Proper surgical care of all wounds should be given, with emphasis on measures taken to minimize the opportunity for growth of anaerobic bacteria. (ii) To individuals known to have received a basic immunizing injection, a booster injection of 0·5 millilitre of fluid tetanus toxoid should be given intramuscularly. (iii) All other patients are to be divided into two categories, those not sensitive and those sensitive to horse serum, as demonstrated by suitable means (the conjunctival test is preferred). Those who are not sensitive should receive 1500 units of tetanus antitoxin intramuscularly. Those who are sensitive to horse serum should not be given tetanus antitoxin in horse serum. They should receive an injection of 0·5 millilitre of fluid tetanus toxoid as the initial step in immunization. They should be observed carefully, so that if tetanus develops the earliest signs may be detected and prompt treatment instituted. After one month a second injection of toxoid is given, followed four to six weeks later by a third injection. These patients are thus safeguarded against future risk from either tetanus or horse serum. (iv) Nation-wide efforts should be made to extend the benefits of active immunization against tetanus to more of the population. (v) Public health departments might with advantage record individual immunizations, so that information would be available to a physician treating an injured person. Of particular importance, of course, is the education of those already immunized in the need for a booster injection of tetanus toxoid every ten years.

[1] *Surg., Gynec. & Obst.*, May, 1955.
[2] *Ann. Surg.*, October, 1954.
[3] *Surgery*, October, 1945.

PULMONARY ARTERIO–VENOUS FISTULÆ AND THEIR RADIOLOGICAL DIAGNOSIS.

PULMONARY arterio-venous fistulæ have been recorded and described in sufficient numbers to establish certain radiological diagnostic criteria, but according to W. J. Stork[1] the radiological diagnosis may not be easy. Small cysts, mesotheliomata, adenomata, bronchogenic carcinomata, metastatic lesions, tuberculomata, hernia of the diaphragm, pulmonary infarct, unresolved pneumonia, bronchiectasis, pulmonary artery aneurysm, ball-shaped infiltration of tuberculosis and even hamartomata are all lesions which must be differentiated. The problem often is resolved if the cardinal radiological criteria are recognized: one or more opacities on either or both sides, more commonly found in the lower lobes, with at least two band-like communicating densities connecting the hilar structures, and the invariable pulsation and increased density of the hilar structures on the involved side. This alone should indicate the diagnosis. Stork points out that these features may not be discernible in every case, or they may be simulated by other lesions. Aneurysm of the branches of the pulmonary artery without a shunt perhaps offers the greatest problem. The distinguishing point is the vessels, which are more distended in the fistula. It is important to demonstrate the vascular origin of the opacity to distinguish pulmonary artery aneurysm from other lesions. An aneurysm of the pulmonary artery without a shunt does not cause cyanosis, which is usually present in arterio-venous fistula. Errors in diagnosis have arisen because aneurysm may not show pulsation as a result of clotting, while tumours may show transmitted pulsations; these difficulties are readily resolved by angiocardiography. Lateral serial laminagrams give decisive information, but angiocardiograms usually give the final proof and should be employed routinely to determine the number and location of the lesions before submitting the patient to surgery. A pneumonectomy is frequently necessary. For this reason knowledge of the condition of the contralateral lung is extremely important. In more than 50% of the reported cases there have been two or more lesions.

[1] *Am. J. Roentgenol.*, September, 1955.

Abstracts from Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Antigenic Variants of Influenza Virus.

P. GERBER, C. G. LOOSLI AND D. HAMRE (*J. Exper. Med.*, June, 1955) studied the antigenic variants of PR8 influenza virus and their development during serial passage in the lungs of partially immune mice. Animals were inoculated intraperitoneally with one or two doses of a formalin-killed virus suspension in allantoic fluid, and were challenged ten days after the last inoculation. Further batches of animals were used to produce antisera to the virus at various times during the passage for cross-immunity tests, and egg titrations were used for estimating the amounts of virus present. After 17 serial passages of the homologous strain some variants could be identified sharing some antigenic components with the parent strain, but with a different one dominant, and this latter increased conspicuously after the eighth passage. Vaccinated mice with high antibody titre resisted challenge by the homologous strain, and the virus did not multiply in the mouse lung. Challenge by the variant did not kill the vaccinated mice, but the virus grew freely in the lungs, and after 21 passages the variant produced consolidation. Mice with initially low antibody titres inoculated with large doses of the variant showed the most successful passage of the variant. The authors discuss the epidemiological implications of this work.

Adenoidal-Pharyngeal-Conjunctival Group of Viruses.

W. P. ROWE, R. J. HUEBNER, J. W. HARTLEY, T. G. WARD AND R. H. PARROTT (*Am. J. Hyg.*, March, 1955) record studies of the adenoidal-pharyngeal-conjunctival group of viruses. They state that these have the common properties of ether resistance, production of a soluble antigen, lack of pathogenicity for laboratory animals, unique cytopathogenic effects in cultures of human embryo, monkey tissues and HeLa cells, and the ability to produce common complement-fixing antibodies in hyperimmunized rabbits. Inocula were made from adenoid tissue obtained at operation or from swabbing from various parts of the alimentary tract, and examined after growth in tissue cultures of HeLa cells, various human tissues or monkey kidney epithelium. Prototype virus isolations were prepared in large amount and concentration calculated to show the cytopathogenic effect within three or five days, and these were used as antigens in serological studies. Sera were prepared in rabbits, and control sera from uninoculated tissue culture fluid were included. One hundred and seventy-one strains of virus producing the cytopathogenic effect on HeLa cells were isolated, 57 from adenoid and tonsillar tissue undergoing degeneration, 61 from naso-pharyngeal secretions. There appeared by cross neutralization tests to be six groups. Some sera from young children neutralized single types of virus. Viruses isolated from patients with an acute infection were of a single type. Some viruses were inoculated into volunteers, and isolations from these people some days later were immunologically the same as the strain introduced. The complement-fixing antigen was separable from the virus particle, and was common to all types. Isolation of the virus strains from tissue was more successful in yielding virus than was the taking of swabbings at the time of operation, though in acutely ill patients virus could be isolated from pharyngeal secretions.

Household Associates and Extent of Poliomyelitis Infection.

P. N. BHATT, M. BROOKS AND J. P. FOX (*Am. J. Hyg., May, 1955*) studied the extent of infection with poliomyelitis virus in household associates of clinical cases, as determined serologically and by virus isolation with tissue culture methods. They obtained material from the homes of the patients in 31 cases of poliomyelitis in New Orleans. In 26 instances, poliomyelitis virus was isolated from patients, and 45% of the members of their households were also excreting polio virus, since it was isolated from a single stool specimen from each of these contacts. In three households where there was no paralytic disease there was no virus isolated; but there was serological evidence of the presence of virus. Twenty-three households yielded 62 type I strains, three yielded seven type II strains, 12% of house associates showed significant rises in antibody titre, and the probable family contact was estimated to be 49%. The authors suggest that nearly all non-immune subjects in the household are concurrently infected, and that the household containing one patient constitutes an epidemiological unit.

Apyrase in Staphylococcal Enterotoxin.

H. SUGIYAMA AND G. M. DACK (*J. Infect. Dis.*, May-June, 1955) studied the apyrase in partially purified staphylococcal enterotoxin. The enzyme activity was demonstrated in culture mediums in which the organisms had grown, and liberated inorganic phosphorus from adenosine triphosphate, adenosine diphosphate and diphosphopyridine nucleotide. Crude preparations of the material were used, and the phosphorus estimations were carried out by manometry or directly by measuring increase in inorganic phosphorus. The activity was greatest in material containing a large amount of enterotoxin as demonstrated by monthly feeding experiments, but it was also present in samples without enterotoxic activity, so that the two are not identical.

Pathogenic Staphylococci.

G. G. JACKSON, H. F. DOWLING AND M. H. LEPPER (*New England J. Med.*, June 16, 1955) made a comparison of α-hæmolysin production with the coagulase test and clinical observations of virulence in assessing the pathogenicity of staphylococci. Their cultures came chiefly from different parts of the respiratory tract of poliomyelitis patients with involvement of the respiratory muscles. Coagulase tests were performed with rabbit plasma, and γ hæmolysin was estimated by testing serial four-fold dilutions of tryptose phosphate broth culture supernatant against washed rabbit red cells in 2% suspension, read after one hour at 37° C. and overnight at 4° C. Two hundred and seventeen strains were tested, and it was considered that the α-hæmolysin results correlated better with the condition of the site from which the cultures were isolated than did the coagulase test. Of coagulase-positive strains 18% did not produce α-hæmolysin, while the number of non-coagulase producers who produced low concentrations of hæmolysin was 9%. The authors discuss the possible influence on the organisms of the wide use of antibiotics in such patients. There were some variations in the α-hæmolysin titre when the tests were repeated with different batches of rabbit blood.

Antigenicity of Gelatin in Man and Rabbits.

P. H. MAURER (*J. Exper. Med.*, November, 1954) studied the antigenicity of oxypolygelatin and gelatin in man. A quantitative precipitin reaction was used for the demonstration of antibody, and a group of 20 healthy volunteers was used. Some had natural antibody present in their serum, some did not. They were then subjected to a series of nine daily immunizing injections of varying amounts of gelatin, and bleedings were carried out three to seven weeks after the last injection. There were considerable rises in antibody in several of the subjects. However, cutaneous reactions with weal and erythema did not result. The precipitates formed in the assays had the characters of truly specific antigen-antibody aggregates.

P. H. MAURER (*ibid.*) extended his studies on the antigenicity of gelatin in rabbits and other species. Normally occurring antibodies were present, and immunization procedures were successful when adjuvant techniques were employed. The author discusses his results.

HYGIENE.

D.D.T. Intoxication.

W. J. HAYES (*Am. J. Pub. Health*, April, 1955) summarizes present knowledge of D.D.T. intoxication. He states that D.D.T. is still important because it is used in greater quantities than any other insecticide, its toxic effects are similar to related chlorinated hydrocarbons, it occurs in food as a residue, and it is stored in human tissue. The signs and symptoms of acute D.D.T. poisoning in humans are then described. The author considers that chronic D.D.T. poisoning has not been confirmed in man and that dermatitis, purpura, agranulocytosis and many other signs and symptoms reported in D.D.T. poisoning are caused by the D.D.T. solvents used. Post-mortem findings in human beings and animals poisoned with D.D.T.

are discussed. Some changes are produced in the liver, but their significance is not clear; and though most of the signs and symptoms indicate neuro-muscular disturbance, no pathological changes have been found in the nervous system. D.D.T. is stored in the adipose tissue of mammals and birds. D.D.T. is broken down in the body, and two of the products have been identified—an acetic acid derivative of D.D.T. is excreted in the urine, and a dehydrochlorinated derivative is stored in the fat. The output of the acetic acid derivative in the urine is related to the D.D.T. intake and can be used as an indication of D.D.T. intoxication. Though the author considers that further research is necessary to determine the exact action of D.D.T. and the significance of the portion of D.D.T. dosage not yet accounted for in balance studies, he concludes that it is safe under present customary usage.

Effect of Gamma Globulin on Measles.

O. L. BETTAG, F. PLOTKE AND H. M. STIRLING (*Pub. Health Rep.*, April, 1955) report the results obtained with γ globulin in the prevention of measles. They state that an epidemic of measles followed by an epidemic of German measles occurred in a residence school for 92 orthopædically disabled children, 16 having no previous history of exanthemata. To prevent the disease 10 pupils were given 0·1 millilitre of γ globulin per pound of body weight intramuscularly on the fourth day after exposure; 24 others received 0·02 millilitre per pound of body weight to modify the illness; 58 students, who had positive histories of measles, received no γ globulin and, therefore, were not quarantined. Six children developed measles at least eleven days after receiving a "preventive" dose of γ globulin. Of these, four had mild and two had moderate attacks of measles, but none had complications from this disease. A previous history of measles was of no value in deciding who should receive γ globulin, since 20 students with such histories developed measles, four German measles and three both. Three had complications of some type. It was found that γ globulin in the dosage currently recommended for prevention of measles failed to protect six out of ten children to whom it was administered. Given in "modifying" dosage, γ globulin apparently failed to modify the disease in four out of 19 students to whom it was administered. There was no evidence that γ globulin prevented or modified German measles.

Vanadium Bronchitis from Cleaning Oil-Fired Boilers.

S. SJÖBERG (*Arch. Indust. Health*, June, 1955) describes the effects produced in oil-fired boiler cleaners by contact with vanadium. He states that minute amounts of vanadium are found in sugar beet, in the vine, in the oak and in some lower marine animals. It occurs in oil ash in amounts varying from 0% to 41% as vanadium pentoxide. This ash is precipitated mainly in large superheated boilers that use large quantities of oil and may be inhaled in the dust that results when the boilers are periodically cleaned. Acute and chronic signs and symptoms produced are acute irritation of conjunctivæ and of the upper respiratory tract, with conjunctivitis, rhinitis and bronchitis, often with rhonchi, in association with fatigue and inability to work for varying lengths of time. The symptoms do not appear until after exposure for one to a few days. Bronchopneumonia may occur. No noteworthy signs of general poisoning have been found. Skin allergy with eczema is possible. Mild chronic respiratory affections may occur after repeated exposure, possibly with emphysema. Diagnosis is confirmed by finding vanadium in the urine. To avoid contact with vanadium protective clothing and masks fed with fresh air have been used, but these are usually discarded because they interfere with the cleaners' movement. Masks with cotton wool filters were found to be unsatisfactory. Burning a mixture of pulverized coal and oil greatly reduces the amount of vanadium in the boiler deposits and is the best prophylactic measure to adopt. No symptoms associated with atmospheric pollution have been observed, but the author considers that there may be a risk from vanadium in soot and smoke from chimneys in large cities in areas where large oil-fired units are concentrated.

Factors Related to Underweight.

E. MASLANSKY AND N. JOLLIFFE (*Am. J. Pub. Health*, August, 1955) have investigated a group of 100 underweight children. They state that underweight constituted a problem to the mother, child and community regardless of its clinical significance. Diet education alone, in the conventional sense, could not solve this problem. Indeed, it often heightened the mother's anxiety about her underweight child. Ignorance and economic pressures undoubtedly were involved, but it was difficult to evaluate to what extent, for often they were complicated by physical and social ills that impaired the mother's capacity to function adequately. Most of the children presented eating problems that began in infancy or early childhood and were rooted in the social, cultural and psychological complexities of their environment. A better understanding of the individual, the family setting and the factors that motivate eating behaviour will stimulate the development of new approaches to the problems of nutrition education.

Associations Between Premature Birth and Socio-Economic Status.

R. RIDER, M. TABACK AND H. KNOBLOCK (*Am. J. Pub. Health*, August, 1955) investigated the birth of premature babies born to resident mothers of Baltimore, United States of America, in the two-year period 1950–1951. The frequency of prematurity among live-born white single babies was 6·8% and varied from 7·3% in the lowest socio-economic tenth of the city to 5·1% in the highest tenth. The incidence of prematurity did not increase in the four lowest tenths with a decline in socio-economic level. The authors state that if all economic tenths had experienced the most favourable prematurity experience as observed in the adjusted rate for the highest tenth, a reduction of 26% in the prematurity problem might be anticipated. The total non-white population premature ratio was 11·3%, which was considerably above the ratio for the lowest socio-economic tenth of the white group. Differences between socio-economic strata in respect of prematurity were not materially affected by adjusting the prematurity ratios simultaneously for maternal age and birth order.

Uterine Cancer Case Finding by Vaginal Cytology.

J. E. DUNN AND D. H. SPRUNT (*Pub. Health Rep.*, April, 1955) are investigating the value of cytology in the early diagnosis of uterine cancer. The object of the investigation is: to determine whether periodic vaginal exfoliative cytology as a screening procedure can be used to diagnose cancer in the pre-invasive stage; to accumulate data for determining age-specific incidence and prevalence rates for both pre-invasive and invasive cervical cancer; to estimate the frequency with which vaginal cytology needs to be applied to be effective as a case-finding procedure; to determine whether, through this case-finding procedure, cervical cancer can become largely a curable disease. In the first 30,000 women examined, 90% of the results of smear examination have been negative; 6% have been unsatisfactory, and a repeat examination has been requested; and 4% have been such that further study has been recommended. Of the 4%, in a little less than half biopsy has been recommended after initial or repeat cytology study. Epithelial changes warranting a diagnosis of carcinoma *in situ* or invasive carcinoma of the cervix have been found in about half the biopsy specimens.

A Dental Care Project for Children.

C. DONNELLY (*Am. J. Pub. Health*, August, 1955) gives details of a children's dental care project set up to obtain accurate data on the need for children's dental services and the time required to provide these services. He found that 12% of 378 children examined in the lower school grades had all their dental defects corrected by private dentists. The remainder were advised to attend their own dentists or the project dentist. Of this remainder 73% had their dental defects corrected by the project dentist. It was found that the time taken for the initial treatment increased with the child's age, and subsequent treatments to maintain the teeth in good order took less time than the initial treatments. The author therefore concludes that the most effective approach in a dental corrective programme is to begin with the young child, correct the accumulated dental defects and recall the patient periodically for maintenance care. In this programme maintenance care for a twelve-month period required between one-third and one-half the time needed for the initial correction of accumulated defects. The programme raised the level of dental health not only among the age groups receiving care in the clinic, but also among the older children who were never eligible for dental care in the programme.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on September 29, 1955, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, DR. H. H. WILLIS, the President, in the chair.

Mental Health in Childhood.

DR. WILFRED H. CARY read a paper entitled "Factors in Childhood Affecting Mental Health" (see page 5).

DR. J. C. KERRIDGE read a paper entitled "Factors Affecting Mental Health in Childhood" (see page 7).

DR. L. J. JONES said that he had been very interested in the two papers, not so much because he was dealing with children in a purely psychiatric practice; his main work was in general practice. It was perhaps true that parents had rather easier access to him in general practice than they had with him as a psychiatrist in Macquarie Street or at the Child Guidance Clinic. One remarkable thing was the almost complete lack of investigations into the factors affecting mental health in childhood. Dr. Jones thought that even more remarkable when one thought of the well-established clinic organization in Australia, and the closeness of Australia to the origin of the clinic system of bringing up babies by the clock and by the dictates of the sister at the clinic. Dr. Jones was of the opinion that Sir Truby King was at one stage superintendent of a mental hospital. In general practice one met the parent who was badly in need of advice in the bringing up of his or her child. Dr. Jones believed, and he had found nothing in the papers to contradict the impression, that there were two very dangerous things to be looked for and guarded against in the rearing of a child; the first was anxiety, and the second was guilt. If those two factors could be kept at a minimum, and if at the same time the child could be trained to be acceptable to society, then the result was possibly a decent adult. The two pitfalls most commonly fallen into by parents in bringing up their children seemed to be, firstly, the creation of anxiety on purpose as a means of punishment (locking the child into a dark room and leaving it there to cry and so forth), and secondly, the deliberate creation of a feeling of guilt in order to limit some undesirable form of behaviour such as masturbation. The implications in adult life were all too clear once the parent embarked on that course. It was very difficult, as Dr. Kerridge and Dr. Cary had pointed out, to define the normal child. Children were being brought up in the face of a very rapidly changing society—more so than in the Victorian age. Dr. Jones felt that the aims and ideals of present-day parents would certainly not be the aims and ideals of their children when they reached adult life; whether that was for good or bad was not for the present generation of parents to decide. The only other common question for which parents sought advice was that of punishment. As had been pointed out, that had been a matter of discussion for many years. There had been the "spare the rod and spoil the child" attitude in the Victorian era which had given way to complete absence of punishment in the first World War era, and then those psychologists and psychiatrists had children of their own, and the present-day attitude seemed to be the acceptance of punishment in some form if necessary. Dr. Jones thought it was necessary to recognize that society was composed of a number of groups and subgroups, of which the family was only one. All those groups for efficient functioning required the establishment of aims and ideals, the establishment of a code of rules representing the acceptable standard of behaviour, the mode of behaviour demanded of members of the group, and also the establishment of mechanisms of punishment for those who transgressed the rules. The family group was no exception, and the family could no more function without punishment than the medical profession could function without its disciplinary tribunals, or the British Medical Association without its rules. Some form of punishment seemed to be necessary for the functioning of the group and for its very coherence; but again, apparently, care was necessary lest punishment should create anxiety in the child, or imply that the child was alienated from the love and security of the group. Dr. Jones said that the other point to be discussed was the rapid shortening of the time they had in which to train children. The Victorian parent had until the children were aged eighteen or nineteen years before they became in any measure independent—sometimes longer than that. At the present time (and it was important to point that out to the parents, too), by the time a child had reached the age of thirteen or fourteen years, unless the parents had laid down a very good basis, then they had lost control of the child as far as training was concerned. The child who at fifteen or sixteen presented without that satisfactory background was often too big a problem for the present facilities of the medical profession or of society to handle. Dr. Jones finally raised the point that there were a number of other factors influencing mental health in children which were not quite so hopeless as the psychological ones. He instanced the physically handicapped children, and said that if their defects could be recognized at an early age, before the child reached the stage at which he was either not acceptable to the group, or was so far behind the average in school work that in adult life there would be a disparity between his intelligence quotient and the type of work that society offered him, then much could be done. The child might be myopic, partially deaf, suffering from malnutrition; and one should not forget the unfortunate children who had a high intelligence quotient and yet suffered from such specific disabilities as word-blindness. At the age of eight or nine years they might not be able to read, or even to recognize the letters of the alphabet. Dr. Jones said that again and again in private practice they saw such children going on to the age of nine or ten years before they were recognized as having a disability. The selection of those children for specific care was quite a refreshing field because of what could be done after one left the psychological field, which was somewhat hopeless.

DR. W. S. DAWSON thanked both speakers for their critical review of the various theories that had been put forward regarding influences in childhood and subsequent development. He said that it appeared that there was a fundamental ignorance as to the extent to which the unhappy child, possibly a frustrated, unsatisfied child, was likely to develop into an unhappy, neurotic adult. Unfortunately many psychiatrists, not only Freud, had been biased by the retrospective investigation of their patients, or rather by the stories which adult patients had told observers of their past experiences dating back to early childhood. There appeared to be little or no reliable information as to the subsequent development of children who appeared to have been unhappy and emotionally unstable in their very early years. Dr. Dawson was sure that Dr. Kerridge was on very sound ground in emphasizing the general atmosphere in which children had been brought up, rather than various experiences that they had gone through in crossing the hurdles of bowel training and various other incidents in their maturation. Dr. Dawson finally said that he would like to remind Dr. Jones that, far from Victorian children having led a fairly sheltered existence until their late teens, at any rate in the earlier part of the Victorian era there had been for the under-privileged terrible experiences of child labour starting from the ages even of eleven and twelve years.

DR. D. W. H. ARNOTT said that he wished to present a few impressions that he had gained over the years; they were impressions only, and unprovable. One was the observation that at birth the cortex was practically unmyelinated except for a small part of the primary sense areas and the motor area. From then on in response to stimulus myelination proceeded very quickly, and was almost complete at the age of four years. The process still went on more slowly until the age of seven or eight years. Dr. Arnott had for many years thought that if one could get the child through this early four-year period, the child's brain would then be well myelinated and be immune to anything but the most catastrophic type of brain assault. In evolving principles of child care, it should be the aim to get a child through the first four years without any serious stress, illness or accident. Dr. Arnott thought that once the brain was well myelinated (about the age of four or five years) most children could stand any of the stresses that their civilization could put on them. That fitted in with Bowlby's statement that it was not safe to separate a child from his mother until he was over five years old. Also in the Persian civilization the parents were allowed to keep the child until the age of five or six years, and then the State took the children completely over and trained them as successful men, warriors, housewives *et cetera*. Once a child had reached the age of five or six years, the particular tradition took over and the parents became less necessary to the child. Tradition was the discipliner, and the essential thing was that the child should be allowed to grow up according to the rules of his own tradition. If the child had achieved a normal sort of cerebral maturity by the age of five or six years (in other words, a well-myelinated brain)

and was then brought up to live expressively and fully within his own particular tradition, he would achieve mental health.

DR. A. N. JENNINGS said that Dr. Kerridge had given good advice on the matter of punishment. Dr. Jennings agreed that if punishment was given quickly and on the spot, the child was able to understand the anger or temper and when it was over still feel accepted. Dr. Kerridge had stressed the need for a natural relationship between the parents and the child. Dr. Jennings thought that sometimes the punishment expressed the parents' viewpoint; sometimes the parents had ideas of making the punishment fit the crime. Recently there had been some correspondence in *The Sydney Morning Herald* about a woman who had decided to cure her son of lying by making him put a hot potato in his mouth. Dr. Jennings asked Dr. Kerridge to comment on such odd ways of disciplining children. Dr. Jennings went on to say that he agreed that it was important to relieve the children of anxiety, but they should think in terms of relieving the parents of anxiety as well. Present-day parents when something had gone wrong consulted the doctor and asked what they had done that was wrong, feeling that it was all their fault. Dr. Jennings thought that often advice was given in a way that suggested that the parents were doing things wrongly. He did not think that many parents consciously contributed to children's behaviour problems. It was very important in handling parents and in giving them advice that that guilt or worry should not be increased.

DR. F. W. CLEMENTS said that he was particularly interested in the point raised by both speakers that a great deal more depended on the climate or atmosphere in the home than on any specific event such as breast feeding or toilet training or weaning. Ruth Benedict had stressed that in her study of swaddling throughout eastern Europe; she had concluded that it was not how the child was swaddled that was very important, but the atmosphere in which it was done. Dr. Clements said that that fitted in well with a study which they had made a couple of years earlier. In association with a social worker they had tried to find out the effects of maternal handling or maternal understanding on the development of babies. Although they had studied only 24, they had done so in considerable detail over a period of six months. The conclusion they reached was that it was the ability of the mother to observe her child and her whole attitude towards the child or the situation, rather than any specific event, that seemed to be important. The greater the mother's capacity and understanding, the greater her powers to observe and interpret any particular events and to do something about them intelligently, so was the actual physical health affected. When disturbed, anxious mothers seemed incapable of making any sort of observation or any worthwhile interpretations of their observations, it was interesting to note that their children were physically inferior to the others. There were only five children who were considered really inferior to the others in the six-month study; they did not grow so fast, their colour was not so good, they had various gastro-intestinal upsets. Dr. Clements said that that brought him to a point that had been stressed by various authors—that, while at the present time a great deal of emphasis was placed on mother-child relationships and maternal understanding, the fact should not be overlooked that for many mothers there were often great burdens outside the actual child-care programme. The mothers were often so overburdened either by their own deep emotional problems or by sheer physical problems of living (of an economic character, or brought about by the mother's relatively low intelligence quotient or her struggles against a physical problem) that they had not enough left over in terms of themselves or in terms of time to devote to the child; thus a really satisfactory relationship could not be established. Dr. Clements thought that when they were considering that problem, they should consider not only the quality of the mother-child relationship, but also the possibility that there always would be in the lives of a significant number of mothers extraneous factors which would mean that there was not enough left over of themselves for giving adequate care to their children.

DR. KENNETH SMITH asked for some comment on the effect of employment of mothers, which was widespread in the community at present. One saw young couples who had one child, but the mother continued to go to work, and consequently the child was left in the care of other people.

Dr. Cary, in reply to Dr. Smith, said that occasionally one saw a child with behaviour problems, the genesis of which he felt sure was in such a situation. Dr. Cary himself thought it a bad thing for the very young child if both parents went to work and left him in the care of some other person. He did not encourage it; he had seen a number of severe behaviour problems arising from such a situation.

Dr. Kerridge, in reply, said that on the question of the mother working, it made a lot of difference how long she worked. If she could be there when the child went off to school, and back home when he returned, it did not matter so much, provided that she was not worn out so that she was irritable with the child. A lot also depended on the arrangements made to look after the child, and on whether he was being adequately cared for while his mother was away. The younger the child, the more important it was that he should have his mother. Very occasionally unmaternal mothers did better working to support the child and letting a sister or grandmother manage the child's upbringing. Dr. Kerridge said that he had been interested in Dr. Jennings's account of the grandmother who tried to cure her grandson of swearing by putting a hot potato in his mouth; one would have to give her points for ingenuity. He supposed that that was a last resort after prohibition and slapping, and much depended on how hot the potato was. The child was very lucky that he was not being punished for incontinence.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Royal North Shore Hospital of Sydney, Crow's Nest, New South Wales, on April 21, 1955. The meeting took the form of a series of clinical demonstrations by members of the medical and surgical staffs of the hospital. Parts of this report appeared in the issues of December 24 and 31, 1955.

Diaphragmatic (Hiatus) Hernia.

DR. IAN MONK showed two patients to illustrate the condition of hiatus hernia in children.

One child, aged two years and ten months when first examined, presented the following features. There was nothing relevant in the family history or previous health. The mother gave a history that excess pharyngeal mucus had been noted immediately after the child's birth, and that aspiration was necessary on a number of occasions for several days. The child was difficult with feeds, so that by the age of nine months medical advice was sought because solid foods could not be tolerated. At sixteen months of age complete obstruction to swallowing occurred, lasting several days and associated with choking, coughing and excessive salivary secretion when feeds were attempted. X-ray examination with barium bolus and meal failed to reveal any abnormality. The attacks increased in frequency, and further examination with barium bolus and meal carried out shortly before operation revealed a stricture of two or three centimetres above the diaphragm in the œsophagus and a "cone" of stomach in the chest. Œsophagoscopic examination was performed and a stricture noted 23 centimetres from the teeth. An erosion of the mucous membrane was seen just above the stricture, the diameter of which was about two millimetres; this was dilated up to 21F. A further dilatation was performed by Dr. J. B. Dowe, and then one week later reduction and repair of the hernia were carried out transthoracically. After that periodic dilatations were performed at gradually increasing intervals. The child for the first time was able to take solid food after an initial period of difficulty. At present the child was well and swallowing normally, and it was over a year since œsophageal dilatation had been necessary.

The other child, aged twenty months when admitted to hospital for operation, had been first examined at the age of eleven months in consultation with the pædiatrician. The problem was one of feeding difficulties, recurrent vomiting and recurrent hæmatemeses. In addition the child had suffered several attacks of respiratory infection, necessitating admission to hospital and treatment with antibiotics. A barium meal examination at this time revealed very free reflux of barium back into the œsophagus but no hiatus hernia. Œsophagoscopic appearances were normal. The mother was instructed to try to train the child to sleep propped up, and alkalis were exhibited, but the symptoms persisted. At eighteen months of age a further barium meal examination revealed free reflux, and a small hiatus hernia was demonstrated. Œsophagoscopy was repeated; the instrument was noted to pass directly into the stomach, and gastric mucosa was identified by biopsy. Reduction and repair of the hernia were carried out in September, 1953. Since that time the child had improved remarkably with no evidence of previous symptoms.

The following points emerged from a consideration of the patients: first, clinical diagnosis was delayed unduly; second, radiological diagnosis was delayed. In the first case the condition was missed on the first examination. In the second the hernia could not be demonstrated because of the free reflux, which, in association with the clinical condition, was enough to warrant a diagnosis.

Three other patients shown by Dr. Monk illustrated hiatus hernia in adults.

A married woman, aged nineteen years when first examined, had been referred for opinion when in the eighth month of pregnancy. She had been admitted to hospital as "a medical emergency" because of massive hæmatemesis which required blood transfusion. Her previous history was that she had always enjoyed good health until the early months of pregnancy, when severe heartburn was noticed. This was worse after meals, especially large ones, worse on bending or lying down, and relieved by vomiting. Œsophagoscopy revealed no evidence of œsophagitis, and a barium meal examination showed a large sliding type of hiatus hernia. Because of the advanced stage of pregnancy it was decided to defer operation until such time as the baby was old enough to be weaned and cared for by a relative. It was considered that the reduction of intraabdominal pressure after delivery would reduce, if not eliminate, any risk of serious complications. She was admitted to hospital for operation ten months later, and reduction and repair of the hernia were effected. In the period prior to operation her symptoms persisted, although less than during the pregnancy. Since operation she had been free of digestive symptoms.

Another married woman, aged sixty-three years, presented many features typical of the condition at that age. For some years she had had epigastric substernal and lower left-sided chest pain after meals. Associated with that she often experienced palpitations and a sense of constriction in the chest and throat accompanied by a feeling of impending doom. On bending or straining regurgitation of gastric contents was noted on occasions. A barium meal examination revealed that a large hiatus hernia of sliding type was present, and that it was not reduced on the patient's assuming the upright position. At operation the findings were confirmed, the hernia being fixed by perioesophageal and perigastric adhesions. After freeing the lower third of the œsophagus and cardiac end of the stomach, reduction and repair were effected easily.

A man, aged thirty-three years, was referred for repair of a large post-traumatic diaphragmatic hernia. He had been run over by a car at the age of eight years, and had been involved in a car accident one year prior to being referred, when he sustained a crushing type of injury to the lower part of the chest. No X-ray examination was made at that time. Subsequently he complained of pain in the chest and slight breathlessness. There was a history of many years' duration, during which he had experienced vague upper abdominal pain. At operation a rent in the diaphragm was seen, extending transversely from the hiatus laterally for about four inches. The cardio-œsophageal junction was held in position by a tenous ring of muscle, being the remnants of the right crus. The stomach had swung laterally up into the chest around an axis, the centre of which was the cardio-œsophageal junction. That was repaired and reconstituted under slight tension. After operation there was immediate recurrence. The manner of repair involved fashioning a flap of diaphragm, which was swung medially so as to reconstitute the hiatal area without tension. The resultant defect left laterally was closed with two layers of tantalum mesh. Subsequent progress to date had been satisfactory.

DR. T. F. ROSE showed a series of patients to illustrate four different types of diaphragmatic hernia.

In the first example a sliding hiatal hernia mimicked a diverticulum of the lower part of the œsophagus in the X-ray films. A fifty-year-old woman had a ten-year history of frequent attacks of retrosternal pain relieved by the vomiting of mucus and made worse by lying on the left side or leaning forwards. Operation through the thorax revealed a large sliding hernia with no sac. The œsophagus was not shortened.

The second patient, a forty-year-old woman, had had a classical sliding hiatus hernia. Her principal symptoms of many years' duration were pain behind the sternum and severe heartburn. There was no shortening of the œsophagus, and œsophagoscopy revealed no œsophagitis. Operation through the thorax with reduction of the stomach and suture of the crural fibres behind the œsophagus cured the symptoms. There was no hernial sac associated with the hernia.

The third patient, a seventy-year-old woman, had had a large paraœsophageal hernia, which was discovered on routine examination in the investigation of precordial and epigastric pain. She had suffered from hypertension for many years. In the past year she had had severe breathlessness on exertion and anginal attacks characterized by epigastric pain radiating to behind the sternum and the left hypochondrium. An electrocardiogram showed severe coronary ischæmia. Operation was not performed, as it was decided that the symptoms were due to her heart condition and not to the hernia.

The fourth patient, a man, aged forty years, had had a traumatic tear in the posterior muscular part of the left dome of the diaphragm radiating to and involving the œsophageal hiatus. He had been hit by a large log whilst timber-getting. He sustained a fractured pelvis and a fracture of the right eleventh and left sixth ribs. For two days only after his injury he complained of mild epigastric pain on swallowing, radiating to behind the sternum, to the left hypochondrium (so that injury to the spleen was for awhile suspected) and to the front of the left shoulder just below the lateral portion of the clavicle. X-ray examination showed what seemed to be a small effusion at the base of the left lung. However, as the symptomless effusion increased in size, a barium meal was given, and X-ray examination showed that the shadow was actually most of the body of the stomach herniating into the thoracic cavity. Operation performed one month after the injury showed the tear as already described. It involved the peritoneum and pleura as well as the diaphragm. Through it the body of the stomach had herniated; so that the greater curvature was on top, and the posterior surface was anterior. The cardia was in its normal position beneath the diaphragm. Repair, aided by phrenic crush, was effected through the chest. Post-operative X-ray examination showed the stomach to be in its normal position with a raised diaphragm due to the phrenic paralysis. It was pointed out that the mild symptoms of this large traumatic hernia might be contrasted with those in other cases of traumatic rupture of the diaphragm which presented themselves as an acute abdomino-thoracic emergency requiring urgent operation for the relief of symptoms.

Carcinoma of Vagina.

DR. A. S. B. STUDDY showed a married woman, aged thirty-six years, who had presented with a history of an offensive white vaginal discharge for six months, amenorrhœa for three months and persistent bright red vaginal bleeding for two weeks. She also complained of weakness and slight loss of weight for one year. She had had two children. On examination of the patient a large fungating mass was found growing from the upper third of the posterior wall of the vagina. The mass was friable, and there was contact bleeding. A biopsy of this mass was taken, and the pathologist gave the following report: "This tissue shows a carcinoma which is mostly anaplastic but in some places is possibly reproducing glandular tissue." Chest X-ray examination showed no evidence of secondary metastases. Treatment was given with radium, 11,000 milligramme hours in two divided doses, the first of 4000 milligramme hours, the second of 7000 milligramme hours. The patient was then discharged from hospital, but referred to the out-patient department for further observation and treatment.

Uterine, Cervical and Vaginal Metastases from Breast Carcinoma.

Dr. Studdy also showed a woman, aged sixty-five years, who in 1946, at a suburban hospital, had undergone simple mastectomy for Paget's disease of the nipple. In 1953 she presented with a hard tumour in the right axilla, which was attached to the skin. Dissection of the axilla was performed, and a hard mass and its surrounding tissue were removed. Histological examination revealed a scirrhous carcinoma. A course of deep X-ray therapy was then given.

In March, 1955, the patient presented with pelvic pain and urinary incontinence and frequency. On vaginal examination, a hard ring was found around the vaginal introitus. The cervix was stony hard. The uterus was greatly enlarged and also hard and stone-like in consistency. Examination of biopsy specimens from the endometrium, cervix and vagina revealed carcinoma tissue with a pattern resembling scirrhous carcinoma of the breast.

Dysgerminoma of Ovary Causing Obstructed Labour.

DR. W. G. JASPER showed a married woman, aged twenty-three years, a *primipara*, who had first reported to the antenatal clinic on April 15, 1954, when eighteen weeks pregnant;

her expected date of confinement was October 21, 1954. Physical examination failed to reveal any abnormality. The uterus was enlarged to the size expected for the period of amenorrhœa. The pelvis appeared adequate; all internal pelvimetry findings were normal. There were no masses palpable in the fornices. The pregnancy was uneventful until August 9, when at thirty-two weeks the fœtus was found to present by the breech; it was easily turned by external version. A week later the presentation was again by the breech and was again turned to a vertex presentation. The pregnancy proceeded as expected to October 25, when the examination revealed a full-term fœtus with an unengaged head. X-ray pelvimetry was ordered, and all dimensions in all planes were found to be average. It was concluded that no difficulty was to be expected. On October 27 at 5.30 p.m. labour commenced. The fœtus was in the left occipito-anterior position, and the head was not engaged. The pains were slight to moderate in character. At 11 p.m., three and a half hours after the patient's admission, there was still no descent of the fœtal head into the pelvis. A rectal examination was then performed, and a large solid immobile mass was felt lying in the pelvis below the fœtal head. The cervix was fully dilated. An immediate lower segment Cæsarean section was performed, and a living male child weighing six pounds was delivered. The pelvic mass was a large solid tumour three inches in diameter of the right ovary. It was quite mobile and benign in appearance, and was easily delivered into the operation wound. Right salpingo-oophorectomy was performed. The post-operative period was uneventful. The pathologist reported that the mass was a dysgerminoma.

Deep X-Ray Therapy.

DR. H. J. HAM showed a series of patients who had received deep X-ray therapy.

The first patient was a woman, who had been aged twenty-eight years when she was first examined in November, 1945. She then had swelling of the lower part of the neck, mainly on the right side, which she had noticed for three months. X-ray examination showed a mass in the right superior part of the mediastinum. It was thought that she had an adenoma of the thyroid extending behind the sternum. At operation on November 19, 1945, by Dr. Hugh Poate the mass was found to consist of matted lymph glands. After examination of a biopsy specimen the pathologist, Dr. A. H. Tebbutt, gave a diagnosis of Hodgkin's disease. Deep X-ray therapy was given to the mediastinum, commencing in April, 1946, and later to the upper abdominal glands (the latter because of abdominal discomfort and a vague mass in the upper part of the abdomen). The patient had remained well and had no symptoms and no palpable glands. An X-ray film of the chest was normal in appearances. A blood count in June, 1954, revealed a total erythrocyte count of 5,000,000 per cubic millimetre, a hæmoglobin value of 12·6 grammes *per centum* and a total leucocyte count of 7500 per cubic millimetre.

Hodgkin's Disease.

DR. H. J. HAM showed two patients suffering from Hodgkin's disease.

A woman patient was aged thirty-seven years when first examined in March, 1946. She had been suffering from shortness of breath for six months, cough and loss of weight, and was found to have large lymph gland masses in the neck. In X-ray films large masses were seen on both sides of the mediastinum, with massive right-sided pleural effusion. Biopsy of a gland revealed Hodgkin's disease. Deep X-ray therapy was given in 1946 and 1947. The mediastinal and neck masses disappeared. Deep X-ray therapy was given to the abdomen in 1951. In October, 1954, the patient developed further tightness in the chest. X-ray films showed a widening mediastinal shadow to the right. A further course of deep X-ray therapy was given. In March, 1955, the patient was clinically well, with slight widening of the mediastinum to the right. No other glands were palpable.

A man, aged thirty-three years, in October, 1945, presented with swelling of the right side of the face and loss of energy. X-ray films of the chest showed enlargement of the superior mediastinal shadow. Biopsy of a gland revealed Hodgkin's disease. In November, 1945, deep X-ray therapy was given to the mediastinum and right side of the neck. The tumour dose was 1500*r* to the mediastinum. The patient was well till November, 1948, when he noticed loss of power in the right leg. This became worse until by January, 1949, he was paraplegic. A pyleogram showed a block at the level of the second lumbar vertebra. In March, 1949, laminectomy was performed by Dr. R. A. Money. The lamina of the third lumbar vertebra was involved with Hodgkin's disease. There was also extradural Hodgkin's tissue. A series of courses of deep X-ray therapy were given to the lumbar part of the spine during 1949. By September the patient was walking with a short ataxic step. In November, 1949, a fungating area appeared along the line of the incision; deep X-ray therapy was given to this area. In January, 1950, the patient was walking quite well, but a further gland was palpable in the right axilla, and further deep X-ray therapy was given. In March, 1950, a further gland was palpable in the left supraclavicular area; deep X-ray therapy was given. In January, 1951, the patient was quite well with skin changes in the irradiated lumbar area. In April, 1951, a mass appeared in the right iliac fossa. Deep X-ray therapy was given to this area, and the mass disappeared. The patient was well till June, 1952, when he developed a mass in the right hypochondrium. Further deep X-ray therapy was given to this area. By 1953 the patient had developed an anæmia which failed to respond to iron, and three blood transfusions had been required to date. In March, 1955, there was no evidence of disease. The patient had a hæmoglobin value of 9·0 grammes *per centum* and a total leucocyte count of 5000 per cubic millimetre.

Mediastinal Tumours.

Three other patients shown by Dr. Ham had been treated for mediastinal tumours.

A man, aged twenty-two years, was examined in March, 1952, when he complained of pain in the left side of the chest. The X-ray film showed the presence of a large mediastinal mass. Biopsy of a supraclavicular gland was carried out, but the report was indefinite. The patient started on deep X-ray therapy and had two doses only, and then was admitted to hospital for thoracotomy. At operation, a large inoperable tumour was found encroaching on the pericardium and surrounding the superior *vena cava*. Removal was not possible. Biopsy was taken, but the report was again indefinite. Deep X-ray therapy was completed, and a tumour dose of 2000*r* given in thirty-four days. The patient was now well and attending the university.

In 1946 a man, aged forty-two years, was investigated in Balmain Hospital for dyspnœa. Marked dilatation of the veins of the neck was present. X-ray examination revealed a large tumour of the mediastinum (middle and anterior). At this stage he was also suffering from auricular fibrillation, which was possibly due to involvement of the pericardium. The blood Wassermann and Kahn reactions were negative. No tubercle bacilli were found in the sputum. The blood count was normal. Deep X-ray therapy was commenced in July, 1946, and given again in December, 1946. After this the venous congestion and dyspnœa disappeared, and X-ray appearances became normal. The patient remained well till April, 1951, when X-ray films showed enlargement of the left hilar region, and the lateral film showed a mass anteriorly placed behind the sternum. He was given further deep X-ray therapy to a tumour dose of 1500*r*. In October, 1952, he returned with a large mass of glands in the right supraclavicular area. The biopsy report was "anaplastic carcinoma". X-ray films of the chest were normal. Deep X-ray therapy was given to the right supraclavicular area in a dose of 3500*r* in ten days. In December, 1952, the patient returned with large glands in the right axilla. Deep X-ray therapy was given to this area in a dose of 3500*r* in ten days. In January, 1954, there was no evidence of recurrence. A chest X-ray film in November, 1954, was normal. It was considered that the diagnosis, at first thought to be lymphosarcoma, might be carcinoma of the thymus.

A man, aged twenty years, was admitted to hospital on January 8, 1948, complaining of asthmatic attacks of increasing severity for seven years; associated with these was loss of weight. On examination he was found to have a trachea deviated to the right, vocal fremitus decreased at the left lung apex, and a percussion note decreased at the left apex. Breath sounds were absent over the base and apex of the left lung. Axillary and cervical lymph glands were enlarged; otherwise no abnormality was found. X-ray examination on admission of the patient to hospital showed very gross enlargement of the mediastinum impinging on both lung fields, and fluoroscopic examination showed that movement of the left side of the diaphragm was restricted. The leucocyte count was 17,200 per cubic millimetre with 62% of neutrophile cells, 20% lymphocytes and 4% of immature band forms. The patient was then transferred to Prince Henry Hospital, where deep X-ray therapy was given in two courses over a period of four months. When the

patient was examined on April 16, 1948, the mass had completely gone, and since then up to the last visit to the outpatient department his chest X-ray film had been completely normal and no glands were palpable anywhere.

Hypostatic Eczema with Autosensitization Rash.

DR. M. B. LEWIS showed a man, aged sixty-one years, who had been quite well until struck on the medial aspect of the right ankle by a piece of steel in November, 1953. An ulcer formed, which took three months to heal. After six months it broke down again, this time taking two months to heal. In December, 1954, a red scaly rash appeared on the previously affected area and formed a spreading weeping area. A similar lesion appeared on the left leg in January, 1955, and in February, 1955, a scaly erythemato-papular rash appeared on both forearms and spread proximally. On the patient's admission to hospital the whole of the lower third of the right leg, excluding the sole of the foot and the toes, was red, denuded of surface epithelium and exuding serum. The affected area was clearly demarcated, and on the surrounding skin were erythematous papules and a few vesicles. A similar but less extensive lesion was present on the left leg, and a scaly, erythemato-papular rash was present on both arms. Varicose veins were present on both legs, the right leg being more severely affected.

Wet dressings of Burow's lotion were applied to the weeping areas, and after three days' treatment all the lesions were dry. Lassar's paste was then applied twice a day to all affected areas, the patient was given sedatives and antihistamine drugs, and an intravenous injection of 10 millilitres of 10% calcium gluconate solution was given every second day. The patient was also given oral cortisone therapy and three treatments of superficial X-ray therapy to the affected areas.

A steady improvement occurred, and a temporary recrudescence of weeping dermatitis about the ankles was now responding rapidly to the use of an ointment containing hydrocortone and "Terramycin", of each 1%.

Papillary Carcinoma of Thyroid.

DR. F. F. RUNDLE and DR. D. C. PERRY showed a female patient, aged sixty-nine years, who had presented in September, 1954, with a swelling of the face and of the right upper limb and right breast. She was also becoming increasingly breathless. She had undergone a thyroidectomy operation at the age of nineteen years and a second thyroidectomy at the age of sixty-five years. Examination of the patient showed the face to be congested, cyanosed and swollen with œdema. The right upper limb and right breast were also grossly œdematous and pitted deeply on pressure. There was conspicuous dilatation of the veins running over the right subcostal margin in front and laterally, and of the veins at the root of the neck and over the upper part of the thorax.

Fluoroscopic examination of the thorax showed a large effusion on the right side, which on being tapped proved to be chylothorax. The superior part of the mediastinum was enlarged to the right. A phlebogram showed the right innominate vein not to fill, and there was widespread development of collateral venous channels in the neck and on the chest wall. Teleradiation of the superior part of the mediastinum in October, 1954, produced considerable relief of symptoms; but in February, 1955, she again noticed increasing breathlessness and swelling of the right upper limb. At this time a mass was first palpable in the neck. It was located on the right side in the region of the carotid triangle. A biopsy was performed; the mass appeared to be a complex of hard veins. A solid worm-like piece of tissue was excised, and the pathologist gave the following report on its histological appearances: "Microscopic. This is a papillary type of adenocarcinoma in a vein. In places there are gland-like spaces containing pink material which suggests the possibility of a thyroid origin." The patient gradually developed all the clinical features of a right-sided Horner's syndrome, in addition to right innominate vein obstruction. An I^{131} uptake test showed appreciable uptake by the right-sided cervical mass.

The following conclusions were reached: (i) It was possible that the patient had had a papillary thyroid carcinoma from the age of adolescence. The previous thyroidectomies were relevant and highly suggestive of that. Such growths were known sometimes to progress with extraordinary slowness, and the previous thyroidectomies might have protracted the natural course of events still further. (ii) There was at present extensive intravenous spread of the carcinomatous tissue. (iii) Follicles could be seen microscopically. The I^{131} uptake had demontrated that the carcinoma was functioning.

Pancreatico-Duodenectomy for Cancer of Pancreas.

Another patient shown by Dr. Rundle and Dr. Perry was a man, aged sixty-seven years, who in November, 1954, had first noticed the onset of pain across the upper part of the abdomen, worse in the right hypochondrium. It came on suddenly and persisted throughout the whole of one day. In the evening he vomited and passed a dark tarry motion. The vomitus was "coffee ground" in character. Three days later he noticed that his eyes and skin were yellow. However, he continued working until the latter end of December, when he became too weak to do so and fainted on one occasion. After the onset of jaundice his stools had been pale and his urine dark. His appetite had been poor, and he had lost two stone in weight. On examination he was found to be slightly wasted and obviously jaundiced. His tongue was clean and moist. There was an ill-defined tumour in the right hypochondrium, but no other grossly abnormal physical signs. The serum bilirubin level was 13·6 milligrammes *per centum*, the thymol turbidity one unit and the serum alkaline phosphatase content 40 units. A test of the stool for occult blood gave a strongly positive result. At laparotomy on January 24, 1955, a tumour mass, about two inches in diameter, was found in the ampullary region of the head of the pancreas. A pancreatico-duodenectomy was performed. The divided end of the common duct was anastomosed end-to-end to the divided jejunum. The pancreatic duct was anastomosed to the side of the jejunal limb, as also was the proximal cut end of the stomach. He made an uninterrupted recovery. His jaundice quickly disappeared, and he was discharged from hospital symptom-free on March 1. The pathologist gave the following report on the specimen:

> Macroscopic: This is a part of the duodenum 20 cm. long in the fixed state. Around the ampulla of Vater there is a raised and ulcerated area 4·5 cm. in the long axis of the bowel and 3 cm. across. This, when cut through, can be seen to be a carcinoma obstructing the pancreatic duct. There is another deposit in the head of the pancreas further down the duodenum.
>
> Microscopic: The carcinoma in the pancreas appears to be arising from the pancreatic tissue. The growth in the region of the ampulla of Vater is of similar structure. To the naked eye the growths appear to be separate so presumably that around the ampulla is a secondary deposit. CSG.

Laryngo-Pharyngectomy (Wookey) for Carcinoma of Larynx Invading Pharynx.

The last patient shown by Dr. Rundle and Dr. Perry was a man, aged sixty-six years, who for six weeks had complained of progressive huskiness of the voice, expectoration of sputum, pain in the left ear and spasms of dyspnœa and coughing when he lay flat in bed. He was losing weight. On examination he was noted to be an elderly man with a husky voice, frequently clearing his throat. He was very wasted, but his colour was good, and there was no evidence of dyspnœa. An enlarged lymph gland was easily palpable in the left jugulo-digastric region. Laryngoscopy showed the epiglottis to be twisted and fixed by a red mass, which filled the left half of the larynx and extended to the left pyriform fossa. A biopsy showed a well-differentiated squamous epithelioma. On July 5, 1954, a laryngo-pharyngectomy (Wookey's operation) was performed in one stage, since it was possible to conserve the pharyngeal wall on the right side and posteriorly. He recovered well from the operation, but a salivary fistula developed and persisted for three weeks. He had been left with a tracheostomy, but otherwise felt well and was gaining weight. The pathologist gave the following report on the specimen:

> Macroscopic: There is a mass of pale soft tissue about 4 to 4·5 cm. in diameter occupying the posterior wall of the larynx and extending to each side.
>
> Microscopic: There is a fairly well-differentiated squamous carcinoma. In the areas examined the incision is clear of the tumour. An adjacent lymph node has no secondary deposit. KVS.

Fibromyomata Uteri Causing Acute Retention of Urine.

DR. W. G. JASPER showed a married woman, aged forty-nine years, who ten days before admission to hospital developed sudden retention of urine requiring catheterization each night. On the two days immediately before admission she

was able to pass voluntarily small amounts of urine on several occasions. Before the present episode she had been perfectly well, except for slight urinary frequency, which necessitated getting up during the night and which had been present for some two months. The action of her bowels was usually regular, but latterly she had been constipated. Her menstruation was regular, but there was on occasions a whitish intermenstrual discharge.

On examination of the patient marked tenderness was found in the lower part of the abdomen, and there was a cystic swelling arising from behind the *symphysis pubis* and reaching the level of the umbilicus. *Per vaginam* the cervix was found to be pushed well forwards by a large, firm, immobile mass occupying the pouch of Douglas. This mass was three inches in diameter and appeared to be attached to the postero-inferior surface of the uterus. The ovaries and tubes could not be palpated. On the patient's admission to hospital a catheter was inserted, and 23 ounces of urine were withdrawn; the abdominal cystic tumour disappeared. Two days after her admission a laparotomy was performed through a mid-line subumbilical incision. The uterus was found to be enlarged and irregular owing to multiple *fibromyomata uteri*. A large fibroid tumour, growing from the posterior aspect of the uterus, was found filling the pouch of Douglas and producing elongation and blockage of the urethra. Both Fallopian tubes were engorged and contained old blood. The right ovary was cystic and firmly adherent to the fimbriated end of the right tube. Total hysterectomy, right salpingo-oophorectomy and left salpingectomy were performed. Convalescence was uneventful. The pathologist reported that macroscopically the specimen included a uterus and right and left Fallopian tubes and the right ovary. The contour of the uterus was deformed by multiple fibromyomata. The largest of these was three inches in diameter and occupied the posterior wall of the uterus. Several small fibromyomata were present in the subserosal position on the anterior wall of the uterus. The right Fallopian tube appeared to be thickened towards its distal end. On microscopic examination the fibromyomata examined had no unusual features. Tuberculous endometritis was present, and the thickened part of the right tube was the site of tuberculous salpingitis.

On these findings a chest X-ray examination was made and showed a chronic and apparently inactive pulmonary lesion.

Staphylococcal Infection of Newborn: Pneumonia.

DR. CLAIR ISBISTER presented three patients who had been suffering from staphylococcal infection of the newborn with pneumonia.

Calcinosis Universalis in an Infant.

DR. R. H. VINES presented a female child, aged twenty months, who had been admitted to hospital under the care of Dr. Hales Wilson, at the age of five months. There was a four-day history of irritability and a rash on the legs. She had been born prematurely, weighing four pounds six ounces, after a normal pregnancy. There was a healthy five-year-old brother. On the maternal side of the family there were several asthmatic relatives. Her progress on dried milk feedings up to five months of age was satisfactory. On admission to hospital her temperature ranged up to 100·8° F., and her resting pulse rate was 130 to 140 per minute. The lower limbs were swollen and large nodular areas (two to five centimetres in diameter) of marked induration were present. Over these areas the skin was purplish red, shiny, tense and apparently thinned. Similar smaller lesions were present on the arms. The limbs were held flexed, and movement was resented. In the blood 12,200 leucocytes per cubic millimetre were present, of which 8162 were neutrophile cells, 3660 lymphocytes and 488 monocytes. Her blood sedimentation rate was 15 millimetres in one hour (micromethod). No pathogens grew from a throat swab, and the urine contained no albumin, sugar or cells. The Eagle flocculation test result was negative. The chest X-ray appearance was normal, while X-ray examination of her skeleton suggested slight osteoporosis.

Over a period of three months there was a gradual diminution in pulse rate, fever and the tenseness of the swellings. The overlying skin came to appear normal, though still rather fixed to the subcutis. The feet became less puffy, but became cold and cyanosed and continued so for a number of months. One month after the onset of the illness fine areas of calcification could be demonstrated radiologically in the subcutis of all limbs. At that time biopsy of skin and subcutaneous tissue was reported to show many fat-laden histiocytes and an occasional giant cell in the fatty layer. Intracellular and extracellular calcification was present, and new fibrous tissue was being laid down in the lobules.

In the succeeding months the areas of induration entirely disappeared. The infant did not crawl till fifteen months of age and appeared to be particularly weak in the left leg. She walked only when nineteen months of age, though in other respects she appeared developmentally normal and no muscle contractures could be demonstrated. X-ray examination had shown progressive increase in the size and density of the areas of calcification, which were now present throughout the subcutis of limbs and abdomen. After an asthmatic episode at nineteen months of age estimations of serum calcium phosphorus and alkaline phosphatase content gave normal values. Urinary pH could be varied throughout a wide range.

The comment was made that Wedgewood, Cook and Cohen, writing in *Pediatrics* in 1953, had stated that dermatomyositis had not been described in infancy. Inasmuch as the diagnosis must be largely based on a clinical picture which was not present in the case under discussion, the diagnosis was inapplicable. However, the picture presented had many of the characteristics of a "collagen" disease of acute onset involving skin, subcutis and, judging by the long period of apparent muscle weakness following the acute phase, possibly muscles. Such "collagen" disorders as scleroderma, *lupus erythematosus*, rheumatoid arthritis and rheumatic fever might be excluded. Dr. Vines suggested that the picture in the present case might be the pattern of dermatomyositis modified by its occurrence in infancy, and that, judging by his knowledge of this and two similar cases, the condition bore a better prognosis than when occurring later in life.

Patent Ductus Arteriosus.

Dr. Vines then showed a patient to illustrate one pattern of evolution of the signs in patent *ductus arteriosus*. A female child, aged four years, had been noted to have systolic and diastolic murmurs, maximal towards the apex of the heart, at the age of three months. By eighteen months of age those were replaced by a loud systolic thrill and murmur maximal in the fourth left intercostal space beside the sternum. In the next eighteen months the only change was the shifting of the site of maximal intensity of the thrill and murmur to the second left intercostal space. At three and a half years of age a typical machinery type of continuous murmur was present, maximal in the same area. Radiologically definite cardiac enlargement was not noted until seven months of age, after which time it was progressive. Pulmonary plethora was marked from the age of eighteen months. There was no electrocardiographic abnormality at any age. A large-volume "collapsing" pulse was present throughout the whole period of observation. At the age of three years and eight months, a large patent *ductus arteriosus* was found and divided by Dr. Ian Monk. Since that time no murmurs had been present, and the child had been more active, eaten better and had a better colour.

Agenesis of Abdominal Muscles.

A male child, aged nine months, had been born by a precipitate vertex delivery after a normal pregnancy. A sister, aged six years, was well, and there was no relevant family history. The infant was slow to breathe at first and was constipated and did not empty the bladder efficiently for some days. Since the end of the first week of life, however, progress had been quite satisfactory, and defæcation and micturition appeared normal. Blood urea estimations on the fifth and seventeenth days of life gave figures of 60 milligrammes *per centum* and 57 milligrammes *per centum* respectively. Excretion pyelography in the third week of life revealed no abnormality. Examination of the infant revealed an extremely flaccid, wrinkled abdominal wall, like that of a recently delivered woman. The spleen, even including its upper pole, was palpable for the first four months of life, but could not be felt now. The testes were not palpable. No other abnormalities had been noted.

Commenting on the case, Dr. Vines said that some fifty cases of agenesis of the abdominal muscles had been reported in the literature. Only two appeared to have been in females. In only one had the testes been descended. In the majority of cases there were associated abnormalities of the urinary tract, hydronephrosis and hydroureter being the most common findings, leading to progressive renal failure. In a large minority there was malrotation of the gut, sometimes productive of symptoms. The ætiology was controversial. Treatment was confined to the provision of a corset, and

the performance of any operative measures applicable in the relief of urinary tract obstruction. Transurethral resection of the bladder neck had been performed in a number of cases with benefit.

Ophthalmology Demonstration.

DR. K. B. ARMSTRONG presented patients to illustrate the following conditions and operations: dacryocystorhinostomy, two cases; corneal graft; ptosis, two cases; bilateral skin graft for recurrent pterygia, with previous operation on about 19 occasions; iritis associated with acute infective hepatitis.

(To be continued.)

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

THE NATIVES OF NEW SOUTH WALES.

[From "A Narrative of the Expedition to Botany Bay", by Watkin Tench, Captain of Marines, 1788.][1]

IN their persons they are far from being a stout race of men, though nimble, sprightly and vigorous. The deficiency of one of the fore teeth of the upper jaw mentioned by Dampier we have seen in almost all of the men, but their organs of sight, so far from being defective as that author mentions those of the inhabitants of the western side of the continent to be, are remarkably quick and piercing. Their color Mr. Cook is inclined to think rather a deep chocolate than an absolute black, though he confesses they have the appearance of the latter, which he attributes to the greasy filth their skins are loaded with. Of their want of cleanliness we have had sufficient proofs, but I am of opinion, all the washing in the world will not make them 2 degrees less black than an African negro. At some of our first interviews we had several droll instances of their mistaking the Africans we brought with us for their own countrymen. Notwithstanding the disregard they have invariably shewn for all the finery we could deck them with, they are fond of adorning themselves with scars which increase their natural hideousness. It is hardly possible to see anything in human shape more ugly than one of the savages thus scarified and further ornamented with a fish bone stuck through the gristle of the nose. The custom of daubing themselves with white earth is also frequent among both sexes: but unlike the inhabitants of the islands in the Pacific Ocean they reject the beautiful feathers which the birds of their country afford. Exclusive of their weapons of offence, and a few stone hatchets very rudely fashioned, their ingenuity is confined to manufacturing small nets in which they put the fish they catch, and to fish hooks made of bone, neither of which are unskilfully executed. On many of the rocks are also to be found delineations of the figures of men and birds very poorly cut.

Of the use or benefit of clothing, these people appear to have no comprehension, though their sufferings from the climate they live in strongly point out the necessity of a covering from the rigour of the seasons.

Both sexes and all ages are invariably found naked. But it must not be inferred from this that custom so inures them to the changes of the elements as to make them bear with indifference the extremes of heat and cold: for we have had visible and repeated proofs that the latter affects them severely, when they are seen shivering and huddling themselves up in heaps in their huts or in the caverns of the rocks until a fire can be kindled.

Than these huts nothing more rude in construction or deficient in convenience can be imagined. They consist only in pieces of bark, laid together in the form of an oven, open at one end and very low, though long enough for a man to lie at full length in. There is reason however to believe that they depend on them less for shelter than on the caverns with which the rocks abound.

To cultivation of the ground they are utter strangers and wholly depend for food on the few fruits they gather: the roots they dig up in the swamps: and the fish they pick up along shore or contrive to strike from their canoes with spears. Fishing, indeed, seems to engross nearly the whole of their time, probably from its forming the chief part of a subsistence, which, observation has convinced us, nothing short of the most painful labour and unwearied assiduity can procure. When fish are scarce, which frequently happens, they often watch the moment of our hauling the seine, and have more than once been known to plunder its contents, in spite of the opposition of those on the spot to guard it: and this even after receiving a part of what had been caught. The only resource at these times is to shew a musquet, and if the bare sight is not sufficient to fire it over their heads, which has seldom failed of dispersing them hitherto, but how long the terror which it excites may continue is doubtful. The canoes in which they fish are as despicable as their huts, being nothing more than a large piece of bark tied up at both ends with vines. Their dextrous management of them added to the swiftness with which they paddle and the boldness that leads them several miles in the open sea are, nevertheless, highly deserving of admiration. A canoe is seldom seen without a fire in it, to dress the fish by, as soon as caught: fire they procure by attrition.

From their manner of disposing of those who die, as well as from every other observation there seems no reason to suppose these people cannibals: nor do they ever eat animal substances in a raw state, unless pressed by extreme hunger, but indiscriminately broil them and their vegetables on a fire, which renders these last an innocent food, though in their raw state many of them are of a poisonous quality: as a poor convict who unguardedly ate of them experienced by falling a sacrifice in twenty-four hours afterwards.

If bread be given to the Indians they chew and spit it out again, seldom choosing to swallow it. Salt beef and pork they like rather better, but spirits they never could be brought to taste a second time.

The only domestic animal they have is the dog, which in their language is called Dingo and a good deal resembles the fox dog of England. The dogs are equally shy of us and attached to the natives. One of them is now in the possession of the Governor and tolerably well reconciled to his new master. As the Indians see the dislike of these dogs to us, they are sometimes mischievous enough to set them on single persons whom they chance to meet in the woods. A surly fellow was one day out shooting, when the natives attempted to divert themselves in this manner at his expense. The man bore the teasing and gnawing of the dogs at his heels for some time, but apprehending at length that his patience might embolden them to use still further liberties, he turned round and shot poor Dingo dead on the spot; the owners of him set off with the utmost expedition.

There is no part of the behaviour of these people that has puzzled us more than that which relates to their women. Comparatively speaking we have seen but few of them, and those have been sometimes kept back with every symptom of jealous sensibility: and sometimes afferred with every appearance of courteous familiarity. Cautious, however, of alarming the feelings of the men on so tender a point, we have constantly made a rule of treating the females with that distance and reserve, which we judged most likely to remove any impression they might have received of our intending ought that could give offence on so delicate a subject. And so successful have our endeavours been, that a quarrel on this head has in no instance happened. The tone of voice of the women, which is pleasingly soft and feminine, forms a striking contrast to the rough guttural pronunciation of the men. Of the other charms of the ladies I shall be silent, though justice obliges me to mention that in the opinion of some amongst us, they shew a degree of timidity and bashfulness which are perhaps inseparable from the female character in its rudest state. It is not a little singular, that the custom of cutting off the two lower joints of the little finger of the left hand observed in the Society Islands is found here among the women who have for the most part undergone this amputation. Hitherto we have not been able to trace out the cause of this usage. At first we supposed it to be peculiar to the married women or those who had borne children: but this conclusion must have been erroneous, as we have no right to believe that celibacy prevails in any instance and some of the older women are without this distinction: and girls of a very tender age are marked by it.

On first setting foot in the country, we were inclined to hold the spears of the natives very cheap. Fatal experience has, however, convinced us that the wound inflicted by this weapon is not a trivial one; and that the skill of the Indians in throwing it is far from despicable. Besides more than a dozen convicts who have unaccountably disappeared, we know that two, who were employed as rush cutters up the harbour, were (from what cause we are yet

[1] From the original in the Mitchell Library, Sydney.

ignorant) most dreadfully mangled and butchered by the natives. A spear had passed entirely through the thickest part of the body of one of them, though a very robust man, and the skull of the other was beaten in. The tools were taken away, but some provisions, which they had with them at the time of the murder, and their cloaths were left untouched. In addition to this misfortune, two more convicts who were peaceably engaged in picking of greens, on a spot very remote from that where their comrades suffered were unawares attacked by a party of Indians, and before they could effect their escape, one of them was pierced by a spear in the hip, after which they knocked him down and plundered his cloaths. The poor wretch, though dreadfully wounded, made shift to crawl off, but his companion was carried away by these barbarians and his fate doubtful, until a soldier, a few days afterwards, picked up his jacket and hat in a native's hut, the latter pierced through by a spear. We have found that these spears are not made invariably alike, some of them being barbed like a fish gig and others simply pointed. In repairing them they are no less dextrous than in throwing them. A broken one being given by a gentleman to an Indian, he instantly snatched up an oyster shell and converted it with his teeth into a tool with which he presently fashioned the spear, and rendered it fit for use: in performing this operation the sole of his foot served him as a work-board. Nor are their weapons of offence confined to the spear only, for they have besides, long wooden swords, shaped like a sabre, capable of inflicting a mortal wound, and clubs of an immense size. Small targets made of the bark of trees are likewise now and then to be seen among them.

From circumstances which have been observed, we have sometimes been inclined to believe these people at war with each other. They have more than once been assembled as if bent on an expedition. An officer one day met fourteen of them marching along in a regular Indian file through the woods, each man armed with a spear in his right hand and a large stone in his left: at their head was a chief who was distinguished by being painted. Though in the proportion of five to one of our people they passed peaceably on.

That their skill in throwing the spear sometimes enables them to kill the kangaroo we have no right to doubt as a long splinter of this weapon was taken out of the thigh of one of these animals over which the flesh had completely closed: but we have never discovered that they have any method of ensnaring them, or that they know any other beasts but the kangaroo and the dog. Whatever animal is shewn them, a dog excepted, they call Kangaroo: a strong presumption that the wild animals of the country are very few.

Soon after our arrival in Port Jackson I was walking out near a place where I observed a party of Indians, busily employed in looking at some sheep in an enclosure, and repeatedly calling out "Kangaroo Kangaroo". As this seemed to afford them pleasure I was willing to increase it, by pointing out the horses and cows, which were at no great distance. But unluckily at the moment, some female convicts, employed near the place, made their appearance, and all my efforts to divert their attention from the ladies became fruitless. They attempted not, however, to offer them the least degree of violence or injury, but stood at a distance of several paces expressing very significantly the manner they were attracted.

It would be trespassing on the reader's indulgence were I to impose on him an account of any civil regulations or ordinances which might possibly exist among this people. I declare to him, that I know not of any, and that excepting a little tributary respect which the younger part appear to pay those more advanced in years, I never could observe any degree of subordination among them. To their religious rites and opinions I am equally a stranger. Had an opportunity offered of seeing the ceremonies observed at disposing of the dead, perhaps, some insight might have been gained: but all that we at present know with certainty is, that they burn the corpse, and afterwards heap up the earth around it, somewhat in the manner of the small tumuli, found in many counties of England.

Correspondence.

THE BRITISH MEDICAL ASSOCIATION AND ITS MEMBERS.

SIR: On many occasions recently I have been asked by medical practitioners: "What has the B.M.A. done for me?" This kind of self-depreciatory attitude seems to be all too prevalent in New South Wales at all events, and probably, I believe, in many other States too.

There are a number of facts which I believe should be ventilated, and crave permission to do so through the columns of your journal, because, although my knowledge is limited to New South Wales, I believe they are Australia-wide in importance.

Firstly, the average medical practitioner having paid his annual subscription and having received his *British Medical Journal* and THE MEDICAL JOURNAL OF AUSTRALIA considers that his obligations to the profession as a whole are over, and anyway such subscription is deductible from income tax.

Secondly, he expects a lot of personal service from the British Medical Association, overlooking the fact that extra service demands extra staff, and this costs money. I understand that the average subscription from members in New South Wales is £8 9s. 8d. Of this amount the following fixed commitments are a first charge: Federal Council capitation fee, £1 1s. (to be £1 5s. in 1956); British Medical Association, £1 11s. 6d.; THE MEDICAL JOURNAL OF AUSTRALIA, £1—a total of £3 12s. 6d., leaving £4 17s. 2d. from each average subscription to meet the administrative and overhead costs of the Branch.

I wish to point out, sir, that the profession can only take out what they put in, that only about one-third of the profession vote at the annual elections for members of Council, that local associations of often 100 or more members are frequently scratching to get a quorum of 13 or 14 at general meetings, that the annual general meeting of the New South Wales Branch of the British Medical Association rarely has more than 40 members present out of a total membership of about 3000, that those who are most vocal in their criticism of the British Medical Association rarely attend local association or Branch general meetings, and that their 22 members of Council (in New South Wales) devote a large part of their leisure hours voluntarily dealing with negotiations with governments, State and Commonwealth, insurance companies, the general public and a host of voluntary and statutory organizations, furthering the aims and interests of the medical profession.

I have sadly come to the conclusion, firstly, that as no fee is involved most of the profession shun British Medical Association meetings, where their opinion would be valued, and secondly, many believe that unless the British Medical Association Council can increase their annual income, then they should be criticized.

It is my belief that it is high time that the medical profession woke up to itself, took an active interest in its own affairs and attended the organized meetings to make itself informed of the problems and difficulties which daily threaten the reputation of the profession as a whole and more importantly its freedom, to which regrettably I believe the majority of our profession pay only lip service.

Wake up, medical profession!

Yours, etc.,

MUNRO S. ALEXANDER.

46 Johnston Street,
Annandale,
New South Wales.

December 16, 1955.

Obituary.

REGINALD GEORGE QUINN.

DR. J. G. WAGNER has sent the following appreciation of the late Dr. Reginald George Quinn.

Reginald George Quinn was the son of R. N. F. Quinn, at one time Under-Secretary for Public Works in Queensland. He was born on January 2, 1897, was educated at Townsville and Brisbane Grammar Schools, and graduated as a B.Sc. (Queensland) in 1916; subsequently he became M.Sc. in 1919, M.B., Ch.M. (Sydney) in 1923 and F.R.A.C.S. in 1933.

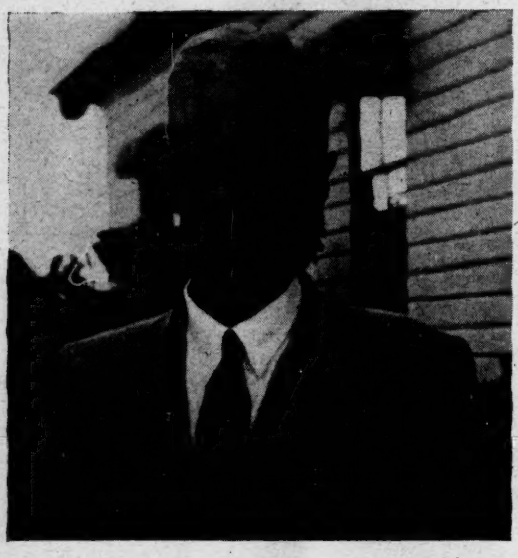
In the Medical School and at St. Andrew's College he made his mark as a student leader. At Brisbane Hospital he was resident medical officer and later assistant medical superintendent under J. B. McLean. Here he gained a wide experience and a reputation for helpfulness to colleagues in difficulty that continued throughout his life. He practised as a general practitioner at Windsor from 1927 to 1955. He was an honorary surgeon at the Brisbane Hospital and honorary obstetrician at the Lady Bowen Hospital.

At school and universities he was distinguished as a tennis player. He was captain of the Queensland and Sydney university teams, and represented Queensland in interstate tennis.

In World War I he served in England as a munitions chemist in the T.N.T. factory at Queen's Ferry from 1916 to 1918. He returned to Australia and enlisted as a private in the Australian Imperial Force just before the end of the war.

In World War II he served from 1940 to 1945, was mentioned in dispatches and became Assistant Director of Medical Services, Northern Command.

His record of British Medical Association service is an inspiration and encouragement to those who have to take the torch from his hand. He was a member of the Queensland Branch Council from 1933 to 1941 and from 1947 to 1949, the break being due to absence on war service. He was Honorary Treasurer from 1935 to 1940 and President in 1938. He was Chairman of Directors of the British Medical Agency, and also of the Queensland Medical Finance Company. He was Honorary Secretary of the Queensland Medical Defence Society, and a member of the building subcommittee and the Medical Fees Tribunal. He was a valued member of the Medical Board of Queensland. Here his clear and logical mind quickly selected the salient points of any problem, and enabled him to offer opinions based on sound reasoning. All his committee work bore the stamp of this quality. He received a Coronation medal in recognition of these and other services.



In 1924 he married Miss Rita Nation, who, with their two daughters, survives him. In his early days at the Brisbane Hospital he suffered accidental damage to his hands which might have completely effaced a man with less self-discipline. In later years ill health added to his handicap, but in spite of these disabilities he carried on a very busy practice without complaint. In this he was greatly helped by the devotion of his wife and the atmosphere of a happy home life.

He was loved by his patients, and he deserved their affection. Their welfare was his first consideration, often at the expense of his own safety. As he wished and, I think, expected, he died in harness. As a general practitioner he showed a wide range of competence. Under the *Medical Act* of Queensland he had been registered as a specialist in surgery, obstetrics and anæsthesia, and his skill and experience had truly entitled him to this unusual triple registration.

I enjoyed his close friendship for nearly forty-two years. In this, as in all else, he was true and unwavering. He will be greatly missed.

DR. K. B. FRASER writes: I first knew Reg. Quinn at the Brisbane Grammar School. My chief memory of him in those days is as a tennis player. Although he engaged in no other games, he had a good ball sense, and his tennis was played with a natural grace and ease that was a pleasure to watch. Afterwards we were at the same college at the University of Sydney and later we were in general practice not far from each other for over twelve years.

It was not, however, until the second World War that I really got to know him well and learnt to appreciate his essential greatness of character. Enlisting in the Australian Imperial Force in November, 1940, he left Australia with the 2/9th Australian General Hospital and became registrar of this hospital in March, 1941. He remained with the 2/9th Australian General Hospital during its time in Egypt, Palestine and New Guinea. At The Seventeen Mile in late 1942 when patients were pouring down from the Kokoda Trail, he played a prominent part in the expansion of this unit to 2000 beds and was acknowledged by all who knew him as an experienced and model hospital registrar. It was during this campaign that he was mentioned in dispatches. In 1944 he was promoted to the rank of lieutenant-colonel and became Assistant Director of Medical Services, Northern Command, a post he held until well after the war was over. It was during this period that I came to appreciate his sterling qualities.

It is hard to describe the true worth of a man who was so unostentatious and self-effacing that one can say he was often hardly noticed. His strength lay in his methodical approach, his critical analysis, his clear vision and his quietly confident answer to every problem; with all this he was a great team man and had in a high degree that uncanny knack of being prepared for every eventuality. Looking back on those war years I cannot remember anyone who approached more closely the pattern of the ideal medical staff officer.

About this time he began to get attacks of severe anginal pain, and it must have been a great effort for him to work on uninterruptedly, but it was in fact many months before any of us had an inkling that he was not well.

On demobilization he went back to his general practice in Brisbane, and, in spite of continued ill health, never spared himself for the last ten years of his life; he laboured on, surmounting all difficulties, beloved by his patients, and, in the end, died as he would have wished, still working.

Not often in life is one privileged to enjoy the friendship of so stout a heart in so frail a frame. I am happy in the thought that the soul of Reg. Quinn, in that Valhalla of true warriors to which it has sped, rests content.

DR. A. E. LEE, President of the Queensland Branch of the British Medical Association, made the following statement at a meeting of the Branch Council on October 28, 1955.

I have to remind you that since our last Council meeting the death has occurred of one of the most esteemed and trusted members of the Association, than whom none has done more in the past twenty-five years to maintain the honour and interests of the medical profession.

When I remind you that Dr. Reg. Quinn was not only a member of this Council from 1933 to 1949, with the exception of the war years, and was for a number of years its Honorary Treasurer, and also President of the Branch, and that he was, up to the moment of his death, Secretary of the Medical Defence Society, Chairman of Directors of the British Medical Agency, a British Medical Association representative on the Medical Board of Queensland, a member of the Ethics Committee of the Branch, of its Medical Fees Tribunal, and of the Post-Graduate Medical Education Committee, this will serve to show the implicit trust and confidence that was displayed in his integrity and judgement.

It was, I think, a fortunate happening that of his own accord he attended the meeting of this Council only three days before his death. His modesty and retiring manner had made him much less known to the general body of the profession than he deserved to be; and it was a good thing that the junior members of this Council could see the manner of person in which the profession put such trust.

His place in the Roll of Honour of this Branch is secure; and his memory will long be treasured affectionately in the minds of those of us who knew him well.

I have already conveyed to his family the deep regret of the profession at the tragic loss they have suffered, and I will propose that a resolution be placed in our minutes, paying a tribute to the great services he has performed for the British Medical Association in Queensland.

I would ask you to stand for a moment in a silent tribute to his memory.

The following resolution was passed by the Council of the Queensland Branch of the British Medical Association:

That this Council records its sorrow at the untimely death of Dr. Reginald George Quinn, and pays tribute to the great services he rendered to the British Medical Association in Queensland over many years as Councillor, Treasurer and President of the Branch; and as its representative on the Medical Board of Queensland; and also as representative of the profession on many other bodies.

Post-Graduate Work.

THE MELBOURNE MEDICAL POST-GRADUATE COMMITTEE.

PROGRAMME FOR FEBRUARY, 1956.

Refresher Courses.

Gynæcology and Obstetrics.

A GYNÆCOLOGY AND OBSTETRICS REFRESHER COURSE for recent graduates will be conducted at the Royal Women's Hospital, Carlton, on a full-time basis, for two weeks from February 6. This course is intended to fulfil the requirements of resident medical officers about to enter private practice, and a detailed programme of the lecture-demonstrations can be obtained from the Post-Graduate Committee. Applications for enrolment on the committee's form, accompanied by the fee of £10 10s., should be sent before January 23, 1956.

Pædiatrics.

A pædiatrics refresher course for recent graduates will be conducted at the Royal Children's Hospital on a full-time basis for one week from Monday, February 20. This course has a similar aim to the one described above, and a timetable may be obtained from the Post-Graduate Committee, to whom the fee of £5 5s. should be sent, accompanying enrolment application on the committee's form, before February 6, 1956.

Country Courses.

Bendigo.

At Bendigo on Friday, February 17, at 8 p.m., Dr. A. R. Wakefield will speak on "Common Injuries of the Hand". The local secretary is Dr. A. J. Walters, 514 High Street, Golden Square, Bendigo. The fee for the lecture is 15s., but those who have paid an annual subscription are invited to attend without further charge.

Flinders Naval Depot.

At Flinders Naval Depot on Wednesday, February 8, at 2.30 p.m., Dr. J. Guest will conduct a demonstration on a surgical subject. This is by arrangement with the Royal Australian Navy.

Courses for Higher Qualifications.

The following courses suitable for candidates for higher qualifications will be held at the University of Melbourne.

A course in anatomy for M.S., D.G.O., D.O., D.L.O., D.P.M., D.D.R., D.A., D.T.R. and D.C.R.A. candidates will be held at 2.15 p.m. on Mondays and Wednesdays, commencing February 27 and continuing till July.

A course in physiology for M.D., M.S., D.L.O., D.O., D.G.O., D.P.M., D.D.R., D.A., primary F.R.A.C.S. and F.F.A.R.A.C.S. candidates will be held at 4 p.m. on Mondays and Wednesdays, from February 27 till July.

A course in pathology for M.D. candidates and as a basic course for those preparing for Part II of the M.S. and the diplomas will be held at 1.30 p.m. on Mondays and Wednesdays, from February 27 till early July.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 10, 1955.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia[2].	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.[3]
Acute Rheumatism	5(4)	3(3)	2(1)	2(2)	..	..	..	..	12
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	2	..	..	..	..	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	4(2)	11(11)	5(4)	1(1)	..	..	1	1	23
Diphtheria	..	2(1)	..	..	..	1	..	..	3
Dysentery (Bacillary)	..	1(1)	25(24)	1(1)	..	..	..	..	27
Encephalitis	..	1	..	1(1)	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	3	..	..	3
Infective Hepatitis	60(30)	74(34)	..	12(5)	..	..	..	1	147
Lead Poisoning	..	..	1	..	..	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	3	2(1)	..	..	..	..	..	..	5
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	1	..	..	..	..	..	..	1
Paratyphoid	..	1	..	..	..	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	4(1)	1	1(1)	7(4)	..	..	..	..	13
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	141(101)	..	13(11)	..	..	..	1	155
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	23(18)	16(9)	5(2)	8(6)	..	..	..	..	52
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	40(20)	9(6)	15(6)	9(5)	..	7(4)	..	..	80
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Figures not available.

[3] Figures incomplete owing to absence of returns from Western Australia.

A course in physics for D.D.R., D.T.R. and D.C.R.A. candidates will be held at 4 p.m. on Thursdays from March 1 till June at the X-ray and Radium Laboratory.

Enrolments.

Enrolment applications, on the committee's form and accompanied by the fee, will be accepted by the Melbourne Medical Post-Graduate Committee up till February 13. Fees are £18 18s. per subject. The total fee for Part I D.D.R. is £37 16s.

Course in Surgery.

The honorary surgical staff of the Alfred Hospital will conduct a course in surgery suitable for candidates for senior surgical qualifications, such as M.S. and F.R.A.C.S., for seven weeks from March 5 till April 20. The classes will be held daily from Monday to Friday, from 4 to 6 p.m. They will consist of general and specialist surgical case demonstrations, pathology classes, X-ray demonstrations and lectures.

The fee for this course is £10 10s., and applications for enrolment should be made through the Melbourne Medical Post-Graduate Committee on their special form and accompanied by the fee. The closing date for enrolment is February 20, 1956.

Inquiries.

The address of the Melbourne Medical Post-Graduate Committee is 394 Albert Street, East Melbourne, C.2. Telephone: FB 2547. Inquiries should be addressed to the director.

Australian Medical Board Proceedings.

QUEENSLAND.

THE following has been registered, pursuant to the provisions of *The Medical Acts, 1939 to 1955*, as a duly qualified medical practitioner: Palmer, Peter Scott, M.B., B.S., 1952 (Univ. Sydney), registered under Section 19 (1) (*a*) of the Act.

The undermentioned persons have been granted limited registration as medical practitioners, pursuant to Section 20 (3) of *The Medical Acts, 1939 to 1955* (in each case the qualification is M.B., B.S., 1955 (Univ. Queensland)):

Armbruster, Mary Neville; Bailey, Raymond William Hyde; Barte, Paul; Bourne, Robert George; Brand, David Jollie; Brown, Ronald Neil; Brumm, Terence Higgins; Burke, Brian Vincent; Byrne, Thomas Vincent; Cadden, Dugal John; Cadzow, William Hamilton; Campbell, William Alexander; Donoghue, Michael Francis; Duhig, Robert Edward Taylor; Duke, Stanley Rowland; Eadie, Mervyn John; Edwards, John Edward; Emmett, Anthony James Jephson; Fitzgerald, Charles Paul; Flanagan, Patrick Henry; Free, Keith Edgar; Gaffney, Thomas Joseph; Gale, Rowland Norman; Green, Robert; Harris, Trevor John; Harvey, Maxwell Melrose; Hickey, Margaret Ann; Hillcoat, Brian Leslie; Hoskin, Margaret Wendy; Johansson, May Shirley; Kelly, Langton Edmund; Kolb, Neville Richard; Langley, Noel Frederick; Lukin, Lionel Geoffrey; Magee, Harold Reginald; Mason, Donald Robertson; Meehan, Arthur Vincent Kenney; Moo, Kenneth; Moran, Edward Raymond; Muir, Henry Andrew; Murphy, Miles Ellis Beirne; McReddie, Isabel Mary; Nasser, Malcolm Frederick; Newell, Bruce Hamilton; Nurcombe, Barry; O'Callaghan, Eugene Desmond; O'Sullivan, Brian Timothy; Paterson, John Russell; Readshaw, Grahame George Cochran; Rogers, Rodney Carl; Shepherd, Vincent Bernard; Short, Noel Virgil; Spalding, David Atcheson; Stafford, Miriam; Thatcher, Thomas John; Tuffley, Robin Edward; Webster, James Burston; Williams, Reginald Hastings.

Honours.

Group Captain Sir Hugh Poate has been promoted from Knight of St. John to Bailiff Grand Cross in the Venerable Order of the Hospital of St. John of Jersualem.

Congresses.

INTERNATIONAL CONGRESS OF HUMAN GENETICS.

THE First International Congress of Human Genetics will be held in Copenhagen, Denmark, from August 1 to 6, 1956. This congress is planned to cover all genetic aspects of normal and pathological characters in man. Any person interested in the subject of human genetics and especially of medical genetics is invited to take part in the congress. The provisional programme and further information will be sent on request made to the Secretariat of the First International Congress of Human Genetics, The University Institute for Human Genetics, 14, Tagensvej, Copenhagen, N., Denmark.

Diary for the Month.

JAN. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JAN. 13.—Queensland Branch, B.M.A.: Council Meeting.
JAN. 13.—Tasmanian Branch, B.M.A.: Council Meeting.
JAN. 16.—Victorian Branch, B.M.A.: Finance Subcommittee.
JAN. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JAN. 19.—Victorian Branch, B.M.A.: Executive of Branch Council.
JAN. 25.—Victorian Branch, B.M.A.: Branch Council.
JAN. 27.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all contract practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 *per annum* within Australia and the British Commonwealth of Nations, and £6 10s. *per annum* within America and foreign countries, payable in advance.